National Park Service
U.S. Department of the Interior

Zion National Park
Utah

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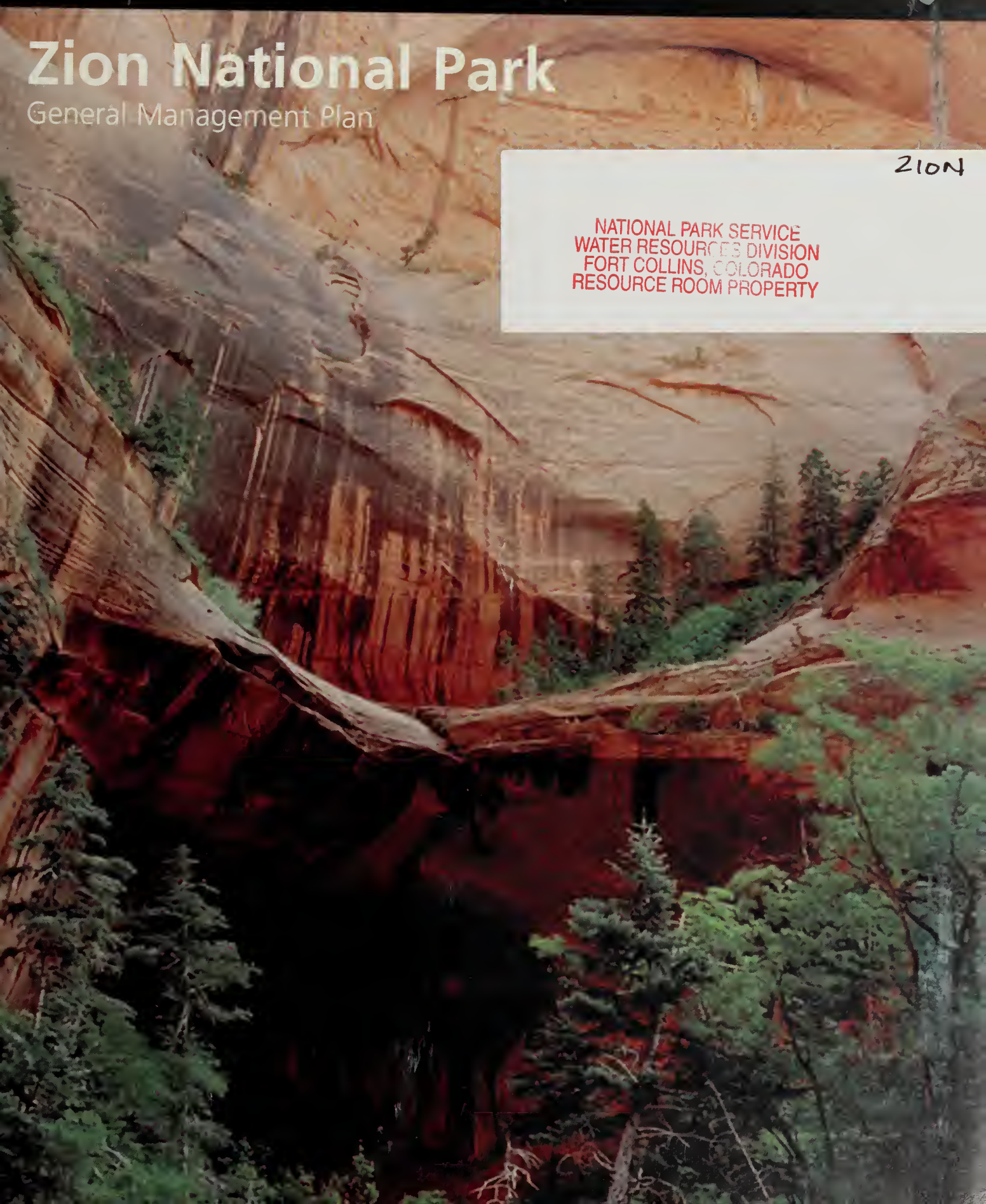
General Management Plan



Zion National Park

General Management Plan

Zion National Park
Utah

Produced by the Denver Service Center
National Park Service

U.S. Department of the Interior
Washington, DC

Summary

The purpose of this plan is to describe the general path the National Park Service intends to follow in managing Zion National Park over the next 20 years.

The plan will provide a framework for proactive decision making on such issues as visitor use, natural and cultural resource management, and park development, which will allow park managers to effectively address future problems and opportunities. In most cases, new development outside the park will take place to meet visitor needs.

Park managers will make several changes to proactively address impacts resulting from increased levels of visitor use. The park will be zoned to ensure that resources are protected and opportunities are provided for a range of quality visitor experiences. Most of the park (90%) will continue to be recommended for wilderness designation and will be managed according to the provisions of the Wilderness Act. In the frontcountry no new major visitor facilities will be provided; however, small visitor facilities, such as picnic sites and restrooms, may be built in several areas, including the Kolob Canyons and the east entrance. Voluntary visitor shuttles may run along the Zion-Mt. Carmel Highway to the east entrance. The Zion Canyon Lodge will continue to operate as it has in the past. Part of the North Fork of the Virgin River in the main Zion Canyon will be restored to a more natural condition.

In the backcountry several management actions will be taken. Three existing research natural areas (21% of the park) will be deauthorized, while new research natural areas covering 6% of the park will be designated. Interim group size limits and new interim group encounter rates will be instituted pending the completion of the wilderness management plan. Park managers may need to limit or reduce visitor numbers on 12 trails and routes in the recommended wilderness, including part of the Narrows, Middle Fork of Taylor Creek, and La Verkin Creek. Only authorized research and NPS-guided educational groups will be allowed in 9,031 acres in remote backcountry areas (including Parunuweap Canyon) due to their designation as research natural areas.

The National Park Service will propose five Bureau of Land Management (BLM) areas, totaling approximately 950 acres, for transfer to the park. Nine access easements, totaling about 15 miles, and three conservation easements, totaling 2,220 acres, will be proposed on private lands outside the park. Congressional authorization will be required for all these actions.

Five drainages and their tributaries in the park and six tributaries on BLM lands adjacent to the park will be included in the national wild and scenic rivers system. The five drainages in the park are: the North Fork of the Virgin River above and below the Temple of Sinawava, the East Fork of the Virgin River, North Creek, La Verkin Creek, and Taylor Creek. The drainages partly on BLM lands are: Kolob Creek, Goose Creek, Shunes Creek, Willis Creek, Beartrap Canyon, and the Middle Fork of Taylor Creek. Congressional authorization will be required for inclusion of these drainages in the national wild and scenic rivers system.

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Purpose of and Need for a Plan

As one of 384 units in the national park system, Zion National Park is under the management of the National Park Service (NPS). The Park Service manages all park units in accordance with the mandate in its 1916 Organic Act and other legislation to conserve resources unimpaired for the enjoyment of future generations. To help achieve this mandate, the National Parks and Recreation Act of 1978 and *NPS Management Policies* (NPS 2001) require each national park unit to have a broad-scale general management plan (GMP).

The purpose of this *General Management Plan* is to describe the general path the National Park Service intends to follow in managing Zion National Park over the next 20 years. The plan does not provide specific and detailed answers to every issue or question facing Zion. However, the plan does provide a framework for proactive decision making on such issues as visitor use, natural and cultural resource management, and park development, which will allow park managers to effectively address future problems and opportunities.

Many changes have occurred in Zion National Park, in the surrounding area, and in park management since Zion's last master plan was approved in 1977. In particular, park visitation has grown dramatically, with visitor use levels doubling between 1982 and 1997. This increase in use has affected park resources and the diversity of visitor experiences offered in Zion. The Zion Canyon shuttle system also has changed the visitor experience in the park. A new plan is essential for providing guidance to manage Zion's visitors in the 21st century, and thus ensure the preservation of park resources and provision of opportunities for visitors to have quality park experiences.

Both the National Parks and Recreation Act and NPS policies require general management plans to address visitor carrying capacity. One of the primary purposes of this plan is to meet this requirement. Carrying capacity is defined under the visitor experience and resource protection (VERP) framework as the type and level of visitor use a park can accommodate while sustaining resource and social conditions that complement the purposes of the park and its management objectives. In other words, carrying capacity is a prescription for the levels of visitor use in relation to various natural resource and visitor experience conditions. To set up a framework for addressing carrying capacity, the park was divided into zones that describe differing desired resource conditions and visitor experiences. (Note that to fully implement the VERP framework, a follow-up implementation plan is needed to identify key social and natural resource indicators to be monitored in each of the park's zones, set standards [minimum acceptable conditions] for each indicator, and develop a monitoring program.)

In addition to meeting the requirements for addressing visitor use management, park managers needed this new plan to address other issues and concerns that have arisen in the past two decades. These issues include those related to research natural areas (RNAs) (i.e., areas administratively designated by federal land management agencies for research and educational purposes or to maintain biological diversity), noise, and land uses adjacent to the park. With most of Zion recommended for wilderness designation, the Park Service also needs this new plan to address how this designation will affect park management (e.g., changes in park zoning). Finally, a new plan presents an opportunity for park managers to explore and recommend other changes related to managing Zion, such as proposing boundary adjustments and wild and scenic river designations.

Planning Assumptions

Several fundamental assumptions underpin the *General Management Plan*. These assumptions are considered "givens" for how the park is managed in the future.

- Existing major developments in the park will remain, although their functions may change. Park staff will continue to maintain the Zion-Mt. Carmel Highway, between the south and east entrances of the park, which will remain opened to through (i.e., nonrecreational commuter) traffic.

- The National Park Service will not build new facilities, such as campgrounds, lodges, roads, and full-service visitor centers, within the park, aside from those associated with the transportation system. It is assumed that the private sector will provide lodging and camping facilities outside the park.

- The National Park Service will continue to operate the Zion Canyon shuttle system, as described in the 1997 *Canyon Transportation System Environmental Assessment*.

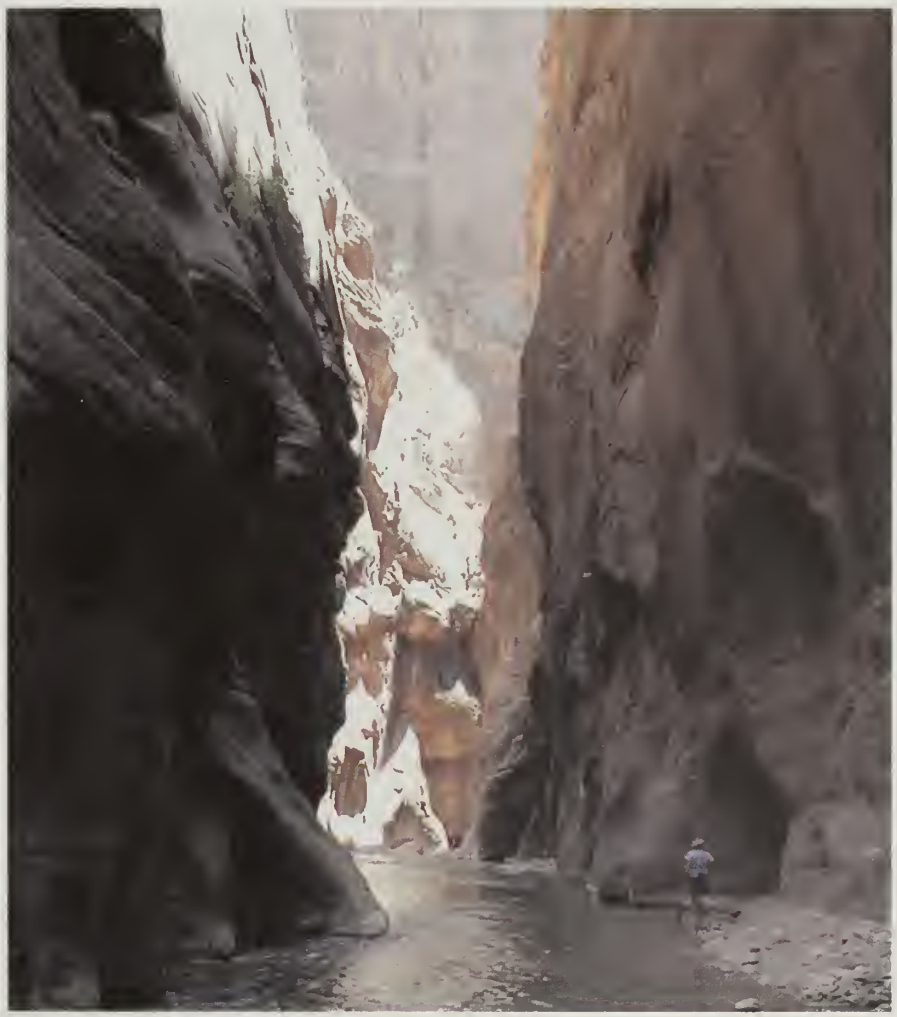
- Park managers will adjust staffing levels to reflect the increase in workloads.

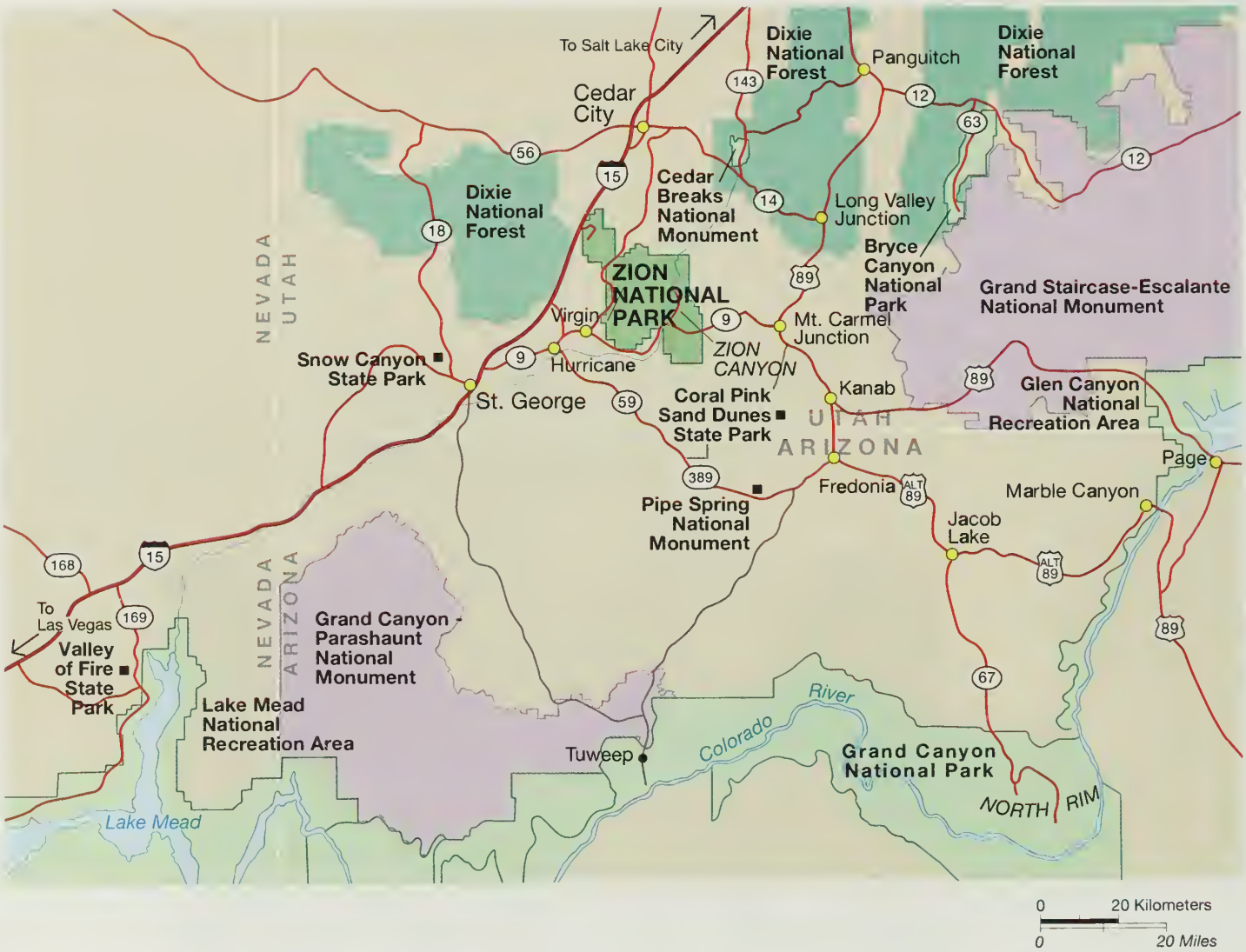
Brief Description of the Park

Located in Washington, Iron, and Kane Counties in southwestern Utah, Zion National Park encompasses some of the most scenic canyon country in the United States (see the Location map). The park is characterized by high plateaus, a maze of narrow, deep, sand-stone canyons, and striking rock towers and mesas. Zion Canyon is the largest and most visited canyon in the park. The North Fork of the Virgin River has carved a spectacular gorge here, with canyon walls in most places rising 2,000 to 3,000 feet above the canyon floor. The southern part of the park is a lower desert area, with colorful mesas bordered by rocky canyons and washes. The northern sections of the park are higher plateaus covered by forests.

Zion is one of the earliest additions to the national park system. On July 31, 1909, President Taft issued a proclamation setting aside 15,200 acres as the Mukuntuweap National Monument. In 1918 another presidential proclamation enlarged the monument to 76,800 acres and changed its name to Zion National Monument. Congress established the area as a national park in 1919. A second Zion National Monument (now called the Kolob Canyons) was established by presidential proclamation in 1937. Congress added the Kolob Canyons to Zion National Park in 1956. The park currently encompasses 148,016 acres. An additional 3,490 acres of private inholdings are present in the Kolob Terrace area, on the west side of the park. (The inholding acreage and all of the other park acreage figures included in this document are based on geographic information system (GIS) calculations. These figures may not correspond with legal description acreages.)

Zion is part of the Southwest's "Grand Circle" of national parks, monuments, historical areas, and recreational areas. Visitors reach the park via Interstate 15, which provides access to the Kolob Canyons area, and Utah Route 9. Zion is 158 miles northeast of Las Vegas and 320 miles southwest of Salt Lake City. The town of Springdale is less than a mile from the park's south entrance. Other nearby towns include Kanab (41 miles from the Zion Canyon Visitor Center), St. George (43 miles), and Cedar City (60 miles).





Location

Zion National Park, Utah

United States Department of the Interior • National Park Service

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Purposes, Significance, and Mission Goals of Zion National Park

The purposes, significance, and mission goals of Zion National Park are three of the key elements that shaped the development of the *General Management Plan*. These elements underlie how the park is managed. The purposes tell why the park was aside as a unit in the national park system. The *significance* of the park addresses what makes the area unique — why it is important enough to our natural and/or cultural heritage to warrant national park designation and how it differs from other parts of the country. Zion's *mission goals* articulate the ideal future conditions the National Park Service is striving to attain. All of the management prescriptions in this management plan are consistent with and support the park's purposes, significance, and mission goals.

Based on Zion's enabling legislation, legislative history, agency management policies, and the knowledge and insights of park staff, the following are the purposes, significance statements, and mission goals for Zion National Park. The purposes of Zion National Park are to

- preserve the dynamic natural process of canyon formation as an extraordinary example of canyon erosion
- preserve and protect the scenic beauty and unique geologic features: the labyrinth of remarkable canyons, volcanic phenomena, fossiliferous deposits, brilliantly colored strata, and rare sedimentation
- preserve the archeological features that pertain to the prehistoric races of America and the ancestral Indian tribes
- preserve the entire area intact for the purpose of scientific research and the enjoyment and enlightenment of the public
- provide a variety of opportunities and a range of experiences, from solitude to high use, to assist visitors in learning about and enjoying park resources without degrading those resources

Zion National Park is significant for the following reasons:

- Zion's stunning scenery features towering, brilliantly colored cliffs and associated vegetation highlighted by a backdrop of contrasting bright, southwestern skies.
- Zion is a geologic showcase with sheer sandstone cliffs among the highest in the world.
- The Virgin River — one of the last mostly free-flowing river systems on the Colorado Plateau — is responsible for the ongoing carving of this deeply incised landscape.
- Because of its unique geographic location and variety of life zones, Zion is home to a large assemblage of plant and animal communities.
- Zion preserves evidence of human occupation from prehistoric to modern times, including American Indian sites, remnants of Mormon homesteading, and engineering and architecture related to park establishment and early tourism.

The mission goals of Zion National Park are to

- provide park visitors educational and recreational opportunities that foster an appreciation of Zion and its resources
- ensure that visitor impacts do not impair resources
- maintain the resources, including plant and animal communities, at healthy and viable levels consistent with natural processes
- manage cultural and physical resources to ensure long-term integrity
- ensure that the built environment provides for safe visitor and staff uses in a sustainable and cost-effective manner
- ensure that the organization is responsive to employee needs, recognizing the contributions of each individual
- foster mutually supportive partnerships with private and public organizations and individuals to achieve visitor use and resource protection goals

Park Policies and Practices

A number of federal laws and NPS policies and practices guide the management of Zion National Park. Appendix G describes some of these key federal laws, such as the NPS Organic Act, which underpins much of what can and cannot be permitted in national parks and which distinguishes national parks from other public lands. This section focuses on park policies and standard park practices that affect the management of Zion. These policies and practices guide the actions taken by park staff on such topics as natural and cultural resource management, use of recommended wilderness areas, development of park facilities, and visitor use management.

These policies and practices will continue to guide park managers. Park staff will continue to implement NPS policies and goals, as identified in *NPS Management Policies* (2001); several existing formal agreements; and many standard park practices, as described in the "Zion National Park Compendium" (NPS n.d.).

The ongoing management policies and practices of Zion National Park are described below. For each topic discussed, there is a general statement that describes the National Park Service's desired future condition or goal for Zion. The general strategies or actions taken (or that will be taken) by park staff to achieve the desired conditions are also discussed. Some of the strategies described below are not currently being implemented, but the strategies are consistent with NPS policy, are not believed to be controversial and require no additional analysis and documentation under the National Environmental Policy Act.

ECOSYSTEM MANAGEMENT

Zion National Park lies within an extensive landscape of human, biological, and physical dimensions. Park resources and their management are affected by natural processes and social circumstances, which often extend beyond park boundaries. Park visitors, local culture and traditions, adjacent land management, and economic considerations all affect park recreational and wilderness values, as well as the conservation of cultural and natural resources. For example, although the park staff manages a small portion of the upper Virgin River watershed, water quality in the park may depend upon actions taken upstream of the park on over 700,000 acres.

The park also is in a rapidly developing region of the United States. With the predicted population growth for Washington, Iron, and Kane Counties, lands adjacent to the park will be subject to increased development — a trend already apparent. Increased use of recreational lands and facilities, greater consumption of water and other resources, and fragmenting of sensitive species habitat will likely result. Because the park is part of this greater ecosystem, should this development impact resources and alter ecological processes, the ability of the park to sustain natural and cultural resources may be compromised.

In the past many park units were managed in a way that did not adapt to natural or social change, or consider influences beyond park boundaries. Managing for a static environment in the human or natural dimension will not provide the means to meet the needs of future generations nor accommodate the change inherent to, and resulting from, natural processes.

In terms of biological, geological, and hydrologic resources, the management of Zion National Park's natural resources has begun to change from custodial management to that of allowing natural processes to shape the landscape, while also taking restoration actions to conserve native biological communities and species. For example, the condition of vegetation communities has declined on park and adjacent lands since the settlement period from overuse, weed infestations, and exclusion of natural fires. To reinstitute the natural fire process, both management-ignited and naturally ignited fire are occurring under closely managed conditions. In concert with fire management, weed control and revegetation, using native plants as active restoration tools, are being used to restore natural vegetation. To be most effective, application of these restoration activities must be conducted in concert with adjacent land managers because vegetation communities do not conform to political boundaries.

- **Desired Conditions:** The Park Service demonstrates leadership in resource stewardship and conservation of ecosystem values within and outside the park. Zion National Park is managed from an ecosystem perspective, where internal and external factors affecting visitor use, environmental quality, and resource stewardship goals are considered at a scale appropriate to their impact on affected resources. Park resources and visitors are managed considering the ecological and social conditions of the park and surrounding area. Park managers adapt to changing ecological and social conditions within and external to the park and continue as partners in regional planning and land management.

- **Strategies:** Park staff will continue to participate in and encourage ongoing partnerships with local, state, and federal agencies and organizations in programs that have importance within and beyond park boundaries. Partnerships important to the long-term viability of critical natural and cultural resources include:

  (1) **Interagency Conservation Agreement for the Virgin Spinedace:** provides for habitat improvement and population protection for the spinedace

  (2) **Virgin River Resource Management and Recovery Program:** provides for conservation of riverine resources (specifically seven species of concern) throughout the Virgin River drainage, through habitat management, improved water quality and quantity, in-stream flow, floodplain protection, and other means

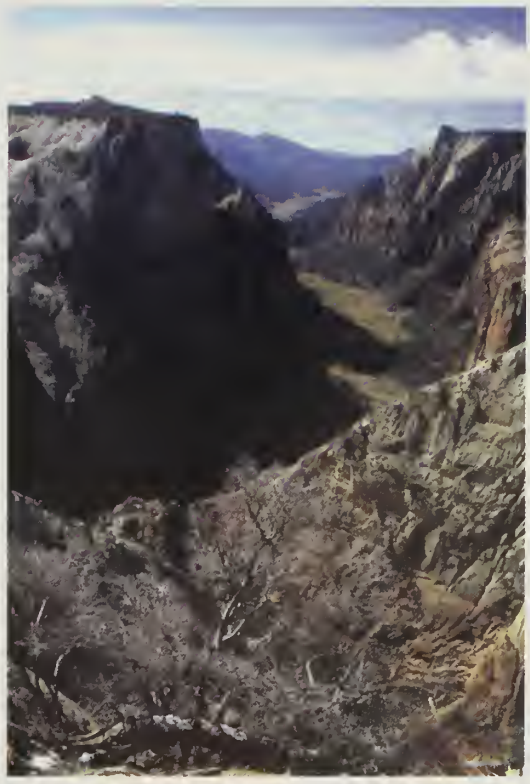
  (3) **Zion National Park Water Rights Settlement Agreement:** protects stream and groundwater resources within and adjacent to the park and provides for federal reserved water rights (pending final adjudication) for the park

  (4) **Grafton Heritage Partnership Project:** restores/ stabilizes the extant structures and interpretation of the historic pioneer-era settlement of Grafton, as well as river channel restoration

  (5) **River channel and floodplain restoration of the North Fork of the Virgin River:** restoration of natural floodplain and riverine processes in stretches of the river within and below the park.

Central to ecosystem management is long-term monitoring of the change in condition of cultural and natural resources and related human influences. Without a planned monitoring program, improvement or degradation of resources and visitor experience cannot be determined with any certainty. To protect, restore, and enhance park resources and to sustain visitor use and enjoyment within the park and the related landscape, park managers will

- initiate long-term monitoring of resources and visitor use, including use of the VERP process as appropriate
- promote park-sponsored research to increase the understanding of park resources, natural processes, and human interactions with the environment
- institute science-based decision-making, incorporating the results of resource monitoring and research into all aspects of park operations
- identify lands external to the park where ecological processes, natural and cultural resources, and human use affect park resources or are closely related to park resource management considerations; initiate joint management actions, agreements, or partnerships to promote resource conservation
- provide vigorous education and outreach programs to highlight conservation and management issues facing the park and related lands, and develop constituencies to assist in their resolution



RELATIONS WITH PRIVATE AND PUBLIC ORGANIZATIONS, ADJACENT LANDOWNERS, AND GOVERNMENTAL AGENCIES

As noted above, Zion National Park is not an island — the park is part of a greater area, socially, politically, ecologically, and historically. The National Park Service must consider how its actions in Zion affect the surrounding environment and society. For instance, management of the park influences local economies through tourism expenditures, as well as the goods and services purchased by the Park Service to support park operations.

- **Desired Conditions:** The National Park Service manages Zion National Park holistically as part of a greater ecological, social, economic, and cultural system. Good relations are maintained with adjacent landowners, surrounding communities, and private and public groups that affect, and are affected by, the park. Zion is managed proactively to resolve external issues and concerns and ensure park values are not compromised.

- **Strategies:** Park staff will continue to establish and foster partnerships with public and private organizations to achieve the purposes and mission of the park. Partnerships will be sought for resource protection, research, education, and visitor enjoyment purposes.

  To foster a spirit of cooperation with neighbors and encourage compatible adjacent land uses, park staff will keep landowners, land managers, local governments, and the public informed about park management activities. Periodic consultations will occur with landowners and communities who are affected by, or potentially affected by park visitors and management actions. Park staff will respond promptly to conflicts that arise over their activities, visitor access, and proposed activities and developments on adjacent lands that may affect Zion. Park managers will seek agreements with landowners to encourage their lands to be managed in a manner compatible with park purposes. Park staff also will seek ways to provide landowners with technical and management assistance to address issues of mutual interest.

  The National Park Service will work closely with local, state, federal agencies, and tribal governments whose programs affect, or are affected by, activities in Zion. The Park Service will continue to be an active member of the Southwest Utah Planning Authorities Council (SUPAC). It also will continue to coordinate with the Five County Associations of Governments, and with other local, state, and federal agencies. In particular, park managers will maintain a close working relationship with the Bureau of Land Management, whose lands abut much of the park, to meet mutual management needs. Park managers also will pursue cooperative regional planning whenever possible to integrate the park into issues of regional concern.

GOVERNMENT TO GOVERNMENT RELATIONS BETWEEN AMERICAN INDIAN TRIBES AND ZION NATIONAL PARK

Several Southern Paiute tribes and bands view Zion National Park as part of their traditional homeland. These tribes and bands include the Paiute Indian Tribe of Utah (which includes the Kanosh, Shivwits, Koosharem, Indian Peaks and Cedar Bands), the Kaibab Band of Paiute Indians, the Moapa Paiute Indian Tribe, and the San Juan Paiute Indian Tribe. The Hopi Tribe and other Puebloan groups also have expressed their close affiliation with Zion.

The National Park Service has developed several park policies based on legal mandates, such as the National Historic Preservation Act, Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act, and the American Indian Religious Freedom Act. The Park Service has written a formal park policy that exempts Southern Paiute tribal members from paying fees if they enter the park for nonrecreational activities (i.e., traditional religious, ceremonial, medicinal, or other customary activities). The Park Service and tribal governments of the Southern Paiute have also jointly developed a memorandum of understanding that allows, under prescribed conditions, tribal members to gather plants found within the park that are used for traditional and customary purposes.

- **Desired Conditions:** The National Park Service and tribes culturally affiliated with Zion maintain positive, productive, government-to-government relationships. Park managers and staff respect the viewpoints and needs of the tribes, continue to promptly address conflicts that occur, and consider American Indian values in park management and operation.

- **Strategies:** The National Park Service will continue to cooperate with tribes in conducting ethnographic studies to better understand which tribes are culturally affiliated with the park and identify culturally significant resources.

Regular consultations will occur with affiliated tribes to continue to improve communications and resolve any problems or misunderstandings.

Park managers will continue to encourage the employment of American Indians on park staff to improve communications and working relationships, and encourage cultural diversity in the workplace.

Culturally affiliated tribal values will be considered in efforts to improve overall management and park interpretation.

A joint monitoring program will be implemented to monitor plant-gathering sites for potential impacts, as called for in the memorandum of understanding with the Southern Paiute.

NATURAL RESOURCES (GENERAL)

Protection, study, and management of the park's natural resources and processes is essential for achieving the park's purposes and mission. The "Resource Management Plan" (NPS 1994a) provides details on the strategies and actions to address the park's most important resource management problems and research needs.

- **Desired Conditions:** Zion retains its ecological integrity, including its natural resources and processes. The natural features of the park, including the natural sound environment remain unimpaired. The park continues to be a dynamic, bio-diverse environment. Park visitors and staff recognize and understand the value of the park's natural resources. Park staff uses the best available scientific information and technology to manage the park's natural resources. Park managers ensure that laboratory facilities are available to meet the needs of park staff and independent scientists engaged in fundamental physical, biological, and cultural studies and analyses. Zion is recognized and valued as an outstanding example of resource stewardship, conservation, education, and public use.

- **General Strategies:** Park staff and other scientists will continue to inventory park resources to quantify, locate, and document biotic and abiotic resources in the park and to assess their status and trends.

  Park managers will encourage and support basic and applied research directly through various partnerships and agreements to enhance the understanding of park resources and processes, or to answer specific management questions.

  Park staff and other scientists will continue the long-term systematic monitoring of resources and processes to discern natural and anthropogenically induced trends, document changes in species or communities, evaluate the effectiveness of management actions taken to protect and restore resources, and to mitigate impacts on resources.

  The park staff will continue to expand the data management system, including a geographic information system (GIS), a research data base, and a literature data base, for analyzing, modeling, predicting, and testing trends in resource conditions.

  Park staff will apply ecological principles to ensure that natural resources are maintained and not impaired. They will manage fire to maintain and/or restore ecosystem integrity and use integrated pest management procedures when necessary to control nonnative organisms or other pests. Habitats for threatened and endangered species will also be conserved and restored.

  Park staff will apply mitigation techniques to minimize the impacts of construction and other activities on park resources (see the text box on page 11). Facilities will be built in previously disturbed areas or in carefully selected sites with as small a construction footprint as possible.

  Park managers will restore disturbed lands as much as possible and determine on a site-by-site basis whether passive or active restoration was necessary. Park staff will carry out active restoration of previously or newly disturbed areas using native genetic materials to regain maximum habitat value. Should facilities be removed, the disturbed lands will be rehabilitated to restore natural topography and soils, and revegetate the areas with native species. Under some circumstances, primarily in front-country developed areas, it may be appropriate and within policy to use nonnative plants in restoration efforts. Additionally, certain exotic plant species may be used to control other, more noxious and invasive exotic plant species. These practices are intended for short-term use only, to achieve a long-term overall goal of native plant community integrity.

Park managers will continue to regularly update the park's resource management plan and prioritize actions needed to protect, manage, and study park resources.

AIR QUALITY

Zion National Park is designated a class I area under the Clean Air Act. This designation allows air quality characteristics, including visibility, to be degraded the least, compared to other Clean Air Act designations.

- **Desired Conditions:** Zion's class I air quality is maintained or enhanced with no significant degradation. Nearly unimpaired views of the landscape both within and outside the park are present. Scenic views, which are integral to the visitor experience and have been identified in the park as per the Clean Air Act, are substantially unimpaired. For example, Mt. Trumbull and the Kaibab Plateau, both over 50 miles away in northern Arizona, can usually be seen from Lava Point. Park staff carry out prescribed fires to replicate ecological conditions and/or reduce dangerous fuel loading, in a manner that minimizes local effects to visibility from smoke production.

- **Strategies:** The National Park Service will continue to work with appropriate state and federal government agencies, industries, nearby communities, land managers, the Southwest Utah Planning Authorities Council (SUPAC), the Utah Division of Air Quality, and the Western Regional Air Partnership to maintain park and regional air quality.

  Park staff and other scientists will inventory and monitor air quality in the park to gain baseline data and to measure any significant changes (improvement or deterioration) to Zion's airshed. This will include a complete inventory of in-park emission sources, as well as those in the immediate vicinity of the park.

  The Park Service will review, comment on, and recommend actions to minimize or reduce emissions from sources being proposed within 64 miles (100 kilometers) of Zion.

  Park managers also will attempt to minimize the effects of in-park pollution sources on air quality. For example, emissions from burning wood in campgrounds and residences may be reduced by establishing nonburn days or by banning wood-burning stoves.

NIGHT SKY

NPS policy recognizes that Zion's night sky is a feature that significantly contributes to the visitor experience. The policy further states that the Park Service will seek to minimize the intrusion of artificial light into the night scene. In natural areas, artificial outdoor lighting will be limited to meeting basic safety requirements and will be shielded when possible.

- **Desired Conditions:** Excellent opportunities to view the night sky are available. Artificial light sources both within and outside the park do not impair night sky viewing opportunities.

- **Strategies**: Park staff will continue to work with local communities to encourage protection of the night sky and will evaluate impacts on the night sky caused by facilities within Zion National Park. To the extent possible, the staff will work within a regional context to protect night sky quality.

  If park staff determine that light sources within the park affect views of the night sky, they will study alternatives to existing lighting sources, such as shielding lights, changing lamp types, or eliminating unnecessary sources.

WATER QUANTITY AND QUALITY

Water is a key resource in Zion National Park, shaping the landscape and affecting plants, animals, and visitor use. Nearby communities and landowners also rely on the water that flows into and out of the park. River flow in Zion is currently substantially natural and free flowing. It is protected by federal reserved water rights recognized under the 1996 Zion National Park Water Rights Settlement Agreement between the United States, the State of Utah, the Washington County Water Conservancy District, and Kane County Water Conservancy District. The agreement identified state appropriative rights and federal reserved water rights to help ensure that the National Park Service maintains groundwater, stream flows, and spring discharges within the park. While the agreement allows for some potential future development of water above the park, the agreement recognizes the United States' reserved rights to "all water underlying, originating within or flowing through Zion National Park ... that was unappropriated as of the dates of reservation of the lands now within the boundaries of the park, which waters are to remain in *a free flowing condition*." [emphasis added] The rights comprise "those waters in the Virgin River Basin," and include all sources of surface and groundwater.

- **Desired Conditions:** The National Park Service fully complies with the Zion National Park Water Rights Settlement Agreement to

Natural Resource Mitigation Measures

Park staff will continue to apply the following measures to avoid or minimize the impacts on sensitive natural resources:

- Enforce trail closures during the Mexican spotted owl breeding/nesting period (March 1 – August 31) for side canyons off the main Zion Canyon where the owls typically are found.
- Prohibit the climbing of cliff faces that support peregrine falcon aeries during breeding and nesting periods (approximately February through July); direct air traffic away from these nesting areas.
- Limit damage or loss of vegetation and associated species (including Zion snails) in hanging gardens through visitor education and the use of delineated trails, barriers, and signs.
- Employ erosion control measures or place barriers to control potential impacts on rare plants from trail erosion or social trailing.
- Employ a variety of techniques, including visitor education programs, restrictions on visitor activities, and ranger patrols, to reduce impacts on wildlife during sensitive times.
- Use designated river access/crossing points, barriers, and closures to prevent trampling and loss of riparian vegetation.
- Use interpretive displays and programs, ranger patrols, and regulations on use levels to minimize water pollution.
- Where possible, new developments will be built in previously disturbed sites. New developments also will be built away from microbiotic soil crusts.
- Prior to any construction in areas where spotted owls are known or suspected to occur, park managers will evaluate the specific locations for new developments, such as picnic areas and trails, in consultation with the U.S. Fish and Wildlife Service. No new facilities will be built during the owl breeding/nesting season (March 1 – August 31).
- No new designated camping sites will be located in Mexican spotted owl territories. If survey results indicate that visitors are camping near nest or roost sites, restrictions will be placed on camping in those areas.
- Park staff will survey proposed development sites for rare plants and will relocate new developments if rare plant populations are present. Similarly, trails and routes will be located to avoid impacts on rare plants.
- Site-specific measures, such as the placement of silt fencing, retention and replacement of topsoil, revegetation of sites, and selective scheduling of construction activities, will be taken to reduce runoff from construction sites. Workers also will be required to control dust, and all construction machinery will be required to meet air emission standards. Restoration efforts will be scheduled to minimize impacts on downstream water users and to avoid the Virgin spinedace spawning periods.
- Wading and hiking in streams with Virgin spinedace will be managed to minimize impacts on the fish.
- To minimize impacts of trail erosion and social trailing on microbiotic crusts in developed areas, park staff will place barriers, erect signs, and rehabilitate damaged areas.
- To help minimize the spread of nonnative plants, park managers will allow only the use of weed-free materials and equipment for park operations and visitor use activities.

support park resource, visitor, and administrative uses, and the rights of other water users.

Flows in the springs, rivers, and tributaries, including floods, are substantially natural. All water withdrawals and appropriations are limited to authorized amounts. Zion's water quality continues to reflect natural conditions and supports administrative and recreational uses, and adjacent communities.

- Strategies: With regard to water flows, the National Park Service will work cooperatively with the Utah Department of Natural Resources, Washington County Water Conservancy District, and Kane County Water Conservancy District to implement the Zion National Park Water Rights Settlement Agreement.

Park staff will strive to conserve water in all park operations. Examples of actions that can be taken include replacing irrigation ditches with pipes, reducing irrigated landscapes, and installing low flow fixtures such as toilets and showers.

Park personnel will document and monitor current water consumption in the park and monitor stream flows. Park managers will review all future projects for compliance with the provisions of the water rights agreement.

Visitor interpretive and education efforts will emphasize the hazards from flash flooding that exist in the park and appropriate responses when flooding occurs. Park staff will educate visitors in techniques to prevent water pollution and safely collect and treat drinking water from natural sources.

Park personnel will develop a program to manage human waste in all areas, particularly in riparian or riverine situations. This program may involve visitors carrying their own wastes out from certain areas.

Park managers also will work with adjacent landowners and the Utah Department of Natural Resources to prevent water pollution and minimize the risk of water-borne diseases stemming from livestock and other sources. Park managers will also participate in state or national water quality remediation and watershed planning programs.

A monitoring program will be established to regularly measure water quality and quantity, including physical, chemical, and biological properties.

NATURAL SOUNDS

NPS Management Policies require park managers to strive to preserve the natural soundscape (natural quiet) associated with the physical and biological resources (for example, the sounds of the wind in the trees). The concept of natural quiet was further defined in the *Report on Effects of Aircraft Overflights on the National Park System* (NPS 1995):

> What is *natural quiet?:* Parks and wildernesses offer a variety of unique, pristine sounds not found in most urban or suburban environments. They also offer a complete absence of sounds that are found in such environments. Together, these two conditions provide a very special dimension to a park experience — quiet itself. In the absence of any discernible source of sound (especially manmade), quiet is an important element of the feeling of solitude. Quiet also affords visitors an opportunity to hear faint or very distant sounds, such as animal activity and waterfalls. Such an experience provides an important perspective on the vastness of the environment in which the visitor is located, often beyond the visual boundaries determined by trees, terrain, and the like. In considering natural quiet as a resource, the ability to clearly hear the delicate and quieter intermittent sounds of nature, the ability to experience interludes of extreme quiet for their own sake, and the opportunity to do so for extended periods of time is what natural quiet is all about.

Aircraft flights over the park for sightseeing, photography, or filming purposes can adversely affect the natural soundscape. The potential exists for increases in air tours and associated noise impacts in the park. Land-based sources, such as motor vehicles, can also affect natural sounds.

- Desired Conditions: Natural sounds predominate in Zion. Visitors have opportunities throughout most of the park to experience natural sounds in an unimpaired condition. The sounds of civilization are generally confined to developed areas.

- Strategies: Park managers will continue to follow several policies and practices to minimize noise both from land and air sources.

  With the passage of Public Law 106-181 (National Parks Air Tour Management Act of 2000), the park staff will develop an air tour management plan to provide guidance in managing this activity. The plan will conform to the above legislation.

As provided in the legislation, the Federal Aviation Administration (FAA) will grant interim operating authority for air tour operators to continue to operate as they have in the past, pending completion of an air tour management plan. If all parties, including the park superintendent, agree, an interim operating authority may be modified to further protect park resources, values, and/or visitor experiences.

Park managers will work with the FAA, tour operators, and all other interested parties in developing the air tour management plan. This plan will determine if commercial air tours will be appropriate for the park, and if so, under what conditions (e.g., if air tours are appropriate in some or all of the park, the plan may establish conditions such as routes, altitudes, times of day, maximum number of flights per unit of time, etc.).

The National Park Service will continue to work with the Federal Aviation Administration (FAA), tour operators, commercial businesses, and general aviation interests to minimize noise and visual impacts of aviation to the park. Aircraft will be encouraged to fly outside the park, especially for those flights where the presence of the park is incidental to the purpose of the flight (i.e., transit between two points). Actions that may be considered for encouraging pilots to fly outside park boundaries include identifying the park on route maps as a noise-sensitive area, educating pilots about the reasons for keeping a distance from the park, and encouraging pilots to fly in compliance with FAA regulations and advisory guidance, in a manner that minimizes noise and other impacts.

The National Park Service will work with the Department of Defense to develop a process to address the occasional problems that arise from military flights over Zion.

Park managers will follow several strategies to control existing and potential land-based noise sources:

- continue operating the shuttle system and eventually prohibit tour buses in Zion Canyon, which will reduce noise levels and eliminate the greatest source of noise in Zion Canyon
- continue to require bus tour companies in Zion to comply with regulations that reduce noise levels (e.g., turning off engines when buses are parked)
- encourage visitors to avoid the use of generators, thus reducing related noise (Electric hookups in the Watchman campground should eliminate most of the need for generators.)
- maintain the existing quiet hours in campgrounds
- continue to enforce existing noise policies in the backcountry

Park managers will minimize noise generated by park management activities by strictly regulating NPS and concession administrative use of noise-producing machinery such as aircraft and motorized equipment. Noise will be a consideration when procuring and using park equipment. In the recommended wilderness area, the use of motorized equipment will conform to the requirements of the Wilderness Act, "minimum requirements procedures," and related NPS policies (NPS Director's Order 41). Park managers also will prepare a soundscape preservation and noise management plan to provide guidance for managing all noise sources in the park, including buses, generators, NPS equipment, other aircraft, and external sources.

CULTURAL RESOURCES (GENERAL)

Zion's cultural resources, including its prehistoric, historic, and ethnographic resources, are an integral part of the park landscape. Protection of these resources is essential for understanding peoples' past, present, and future relationship with the park environment and expressions of America's cultural heritage. The Zion "Resource Management Plan" (NPS 1994a) provides details on the strategies and actions to address the park's most important cultural resource problems and research needs.

- **Desired Conditions:** Zion's cultural resources are protected and the integrity of the park's cultural resources is preserved unimpaired. Park visitors and employees recognize and understand the value of the park's cultural resources. Zion is recognized and valued as an example of resource stewardship, conservation, education, and public use.

- **General Strategies:** The National Park Service will support basic and applied research, directly and through various partnerships and agreements, to enhance the understanding of resources and processes or to solve specific management questions.

  Park staff will use the best available scientific information and technology for making deci-

Cultural Resource Mitigation Measures

Park staff will continue to apply the following measures to ensure that impacts on sensitive cultural resources are avoided or minimized:

- Consult a Utah state historical preservation officer and undertake an archeological survey, to determine the extent and significance of archeological resources in areas that are not surveyed, for actions that may involve ground disturbance or affect structures and/or landscapes that are either on or eligible for the National Register of Historic Places
- Where possible, site projects and facilities in previously disturbed or developed locations
- Whenever possible, modify project design features to avoid effects to national register eligible or listed properties
- Ensure that archeological monitors are present during all construction activities that may impact subsurface cultural deposits
- Add signs and physical barriers to protect sites listed on the national register (or are eligible for listing) from visitor related impacts.
- Focus public education initiatives on class I and class II sites, as identified under the park's archeological site disclosure policy

sions on and managing the park's cultural resources.

Park staff and scientists will continue to collect information to fill gaps in the knowledge and understanding of Zion's cultural resources, to assess their status and trends and more effectively protect and manage the resources.

The National Park Service also will continue long-term monitoring of archeological sites to measure the deterioration from natural and human sources and to evaluate the effectiveness of management actions to protect resources and mitigate impacts.

To analyze, model, predict, and test trends in resource conditions, park managers will continue to use and expand a data management system, including a geographic information system (GIS).

To provide the public and park staff with optimum interpretive and resource management opportunities, park personnel will continue to research, document, and catalogue the museum collection. Museum objects and archival materials will be conserved to NPS and professional standards. The park's museum conservation program will continue to provide for the proper preservation and protection of the museum collection.

In accordance with the National Historic Preservation Act, as amended, park managers will continue to locate, identify, and evaluate park resources to determine if they are eligible for listing in the National Register of Historic Places.

Visitor use management and construction mitigation techniques will continue to ensure that human activities are not impairing park resources. Park managers will rely on a variety of actions to minimize these impacts, including visitor education and interpretation, and use of foot patrols to enforce the Archeological Resources Protection Act. The park's archeological site disclosure policy will continue to be followed (see the archeological site disclosure text box on page 15).

Park managers will continue to regularly update the "Resource Management Plan" and prioritize actions needed to protect park resources.

HISTORIC STRUCTURES

The National Park Service listed a total of 91 historic structures at Zion in the Park Service's 1998 "List of Classified Structures" (LCS). Eighty-five of those structures are either listed or recommended as eligible for listing on the National Register of Historic Places. With the exception of a few prehistoric architectural sites, all of the historic structures on the LCS are used for park operational purposes (housing, offices), transportation, or recreation.

- Desired Conditions: The historic built environment, whether federally owned or concession leased, is maintained in good condition.

Zion National Park's Archeological Site Disclosure Policy

The National Park Service has devised and incorporated an archeological site disclosure policy at several national parks in Utah, including Zion National Park. This policy makes information about the location of archeological sites available to the public, but only if "no harm, threat, or destruction of cultural resources will result" from disclosure of that information. In general terms, such information is only provided to those sites that are regularly patrolled, monitored, stabilized, or otherwise protected from visitor impacts or harm. The site disclosure policy establishes three classes of sites, based on the ability of the site to withstand visitor impacts. The following describes those classes and the management actions that continue to be taken with regard to visitor access to sites within each class.

Class I sites are those that are highly visible in the park and generally known to visitors, like the Weeping Rock granary or the south gate petroglyph site. These sites also receive direct physical protection (e.g., fencing, barriers, signs), as well as regular monitoring and condition assessment by park staff and site stewards. Some of these sites may have already been impacted by prior visitor use. The National Park Service provides information on these sites at the visitor center, as well as information on appropriate site etiquette and the Park Service's archeological site protection and use policy.

Class II sites are evaluated as being more fragile and vulnerable to visitor impacts than class I sites, but are also well known to visitors. When visitors request information on a specific site, by name or site number, they are directed to the visitor center and a member of the park interpretive staff. Park personnel provide visitors location information on class II sites only after providing information on appropriate site etiquette and the archeological site protection and use policy. Park staff also regularly monitor class II sites, which have stabilization and protective measures in place.

Class III sites comprise the majority of sites within the park. These are considered to be fragile resources and not appropriate for visitor uses. In accordance with the National Historic Preservation Act and the Archeological Resources Protection Act, location information on these sites is withheld from the general public. The National Park Service allows access only to those holding valid Archeological Resource Protection Act permits related to the study or management of these sites and only after they have consulted with the cultural resource management specialist or the park archeologist.

Whenever possible, adaptive use of historic structures for park needs is considered before building new infrastructure.

- Strategies: The park staff will continue to manage historic structures as "cultural resources" and will give full consideration to historical values that may be affected as a result of park planning efforts.

- The park staff will continue to work closely with and consult with the Utah State Historic Preservation Officer and other interested parties to identify, evaluate, and protect historic structures through mitigation or avoidance, as required by sections 106 and 110 of the National Historic Preservation Act, as amended.

- The park staff will employ technically sound historic preservation practices through routine preservation maintenance actions that are intended to slow the rate of deterioration and protect the fabric, character, and design of the building or structure.

- Park resource and maintenance staff will receive historic preservation training and will be made aware of the most recent preservation technology and applications available.

LAND PROTECTION

Private lands, water rights, and mineral rights are in portions of Zion National Park (shown on the Recommended Wilderness and Land Status map on page 47). Private lands are confined to the Kolob Canyons and Kolob Terrace. Private water rights are associated with some of these land inholdings, and on federally owned lands in the northwest corner of the park at Camp Creek. An application has been filed with the state engineer to relocate a private water right on Shunes Creek in the southeast part of the park to a location outside the park. The town of Springdale and the Springdale Consolidated Irrigation Company share a diversion with the National Park Service on the North Fork of the Virgin River 0.3 miles below the junction of the Zion Mount Carmel Highway and the Zion Canyon Scenic Drive. Private mineral rights are confined to two small tracts (4.39 acres) near the south entrance.

The National Park Service recognizes all private rights in the park and respects the rights of the owners. Private vehicles will continue to access

the inholdings on existing roads, unless the land and associated roads are acquired. Use of snowmobiles will continue to be permitted along the Kolob-Terrace Road in the park and on two segments of the Lava Point Road so landowners can access their private property.

Inholdings are managed under the provisions of the "Zion National Park Land Protection Plan" (NPS 1984). Private landowners may conduct certain activities, defined as compatible uses, which will not damage the resources for which Zion National Park was established to protect. Some examples of compatible uses include: normal maintenance and upkeep, interior remodeling, razing of a structure and replacing it with one of the same size, continued diversion of water consistent with a valid water right, or grazing by domestic animals if that use was occurring when the land became an inholding. Examples of incompatible uses include: construction of buildings on undeveloped land, subdividing or selling a portion of the inholding, developing minerals, or any action that results in damage to natural or cultural resources, wildlife, or scenery.

If incompatible uses occur, the National Park Service will contact the landowner to eliminate this use. The National Park Service will not seek to acquire any interest in private lands without the consent of the owner as long as these lands are devoted to compatible uses. However, if significant environmental impacts occur through incompatible use, measures will be taken to rectify the situation. The alternatives discussed in the "Land Protection Plan" may be employed to prevent the incompatible use. If these measures fail, it may be necessary to invoke condemnation procedures as a last resort to protect park values.

- Desired Conditions: In the short run, landowners manage their lands in a manner compatible with the purposes and mission of the park. Water rights are managed to minimize impacts to park resources. In the long run, the National Park Service has agreements or has acquired sufficient interests in the inholdings and water rights to achieve park purposes and mission goals. If and when the lands are acquired, they will be managed like the surrounding park lands and management zones.

- Strategies: In the short run, private property and water rights will continue to be recognized. Park staff will continue to clearly communicate with private right owners regarding desired management. Periodic meetings will be held with the owners to resolve any problems.

  In the long run, park staff will continue implementing the actions called for in the "Land Protection Plan." Various techniques will be used to protect park values, including cooperative management agreements, acquisition of conservation and access easements, land exchanges, donations, and purchase of fee title. The management of such lands will revert to the zoning and wilderness status proposed in this plan once the land or water rights are acquired or relinquished, and nonconforming uses are removed.

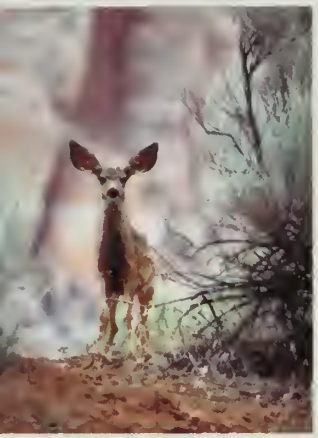
PARK ACCESSIBILITY

The policy of the National Park Service is to maximize accessibility for people (visitors and staff) with disabilities. Guidance on this topic is provided by federal statutes and regulations. These regulations include the Architectural Barriers Act of 1968; the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; 28 *Code of Federal Regulations* (CFR), Part 36 and 43 CFR, Part 17; the Uniform Federal Accessibility Standards of 1984; the U.S. Access Board Draft Accessibility Guidelines for Outdoor Developed Areas of 1999; and *NPS Management Policies and Director's Orders.*

- Desired Conditions: Zion National Park's buildings, facilities, programs, and services are accessible to and usable by all people, including those with disabilities. All new and renovated buildings and facilities, including those provided by concessioners, are designed and constructed to provide access to people with disabilities. All services and programs, including those offered by concessioners, volunteers, cooperating associations, and interpreters, also are designed to be accessible by people with disabilities. There are opportunities for all people to access parts of the park's backcountry.

- Strategies: Park staff will work with user groups, such as saddle stock groups and disabled people or their representatives, to provide opportunities for the disabled to access to the front and backcountry.

  Existing buildings and facilities will be evaluated to determine the degree to which they are currently accessible to and usable by people with disabilities, and to identify barriers that limit access. Action plans will be developed identifying how barriers will be removed.



Similarly, existing programs, activities and services (including interpretation, telecommunications, media, and web pages) will be evaluated to determine the degree to which they are currently accessible to and usable by people with disabilities, and to identify barriers to access. Action plans will be developed identifying how barriers will be removed.

VISITOR USE AND EXPERIENCE

With the exception of commercial guided activities, visitors have had few restrictions on traditional activities in Zion until the past decade or so. However, over 2.5 million people now annually visit Zion and participate in a wide range of activities. Park managers are taking action to manage this use, minimize or avoid resource impacts, and ensure that visitors continue to have the opportunity for high quality experiences.

- **Desired Conditions:** Zion offers a variety of activities that are consistent with the park's purposes and significance. The vast majority of visitors are satisfied with appropriate park facilities, services, and recreational opportunities. Most visitors understand and appreciate the basic purposes and significance of the park and their stewardship role in preserving park features. They actively contribute to the park's preservation through demonstrated appropriate use and behavior. Visitor use levels and activities are consistent with park purposes and desired resource conditions and visitor opportunities. Resource impacts and conflicts between users are minimal. Visitors have opportunities to experience the natural sound environment of the park in an unimpaired condition. They understand and support management actions that are taken to diminish or avoid resource impacts.

- **Strategies:** If it is necessary to take action to address visitor impacts, park managers will use the method that assures the most resource protection whenever possible. Methods that may be used in this regard include such techniques as providing ongoing visitor education and redesigning or "hardening" facilities (e.g., surfacing a trail or building a fence). More restrictive methods may include implementing a reservation system and requiring permits for certain uses or areas, placing limits on use, and closing areas including trails or campsites. Restrictions on visitor use will be based on a determination by the park superintendent that such measures are consistent with the park's enabling legislation and are necessary to either prevent the degradation of the values and purposes for which the park was established, or to minimize visitor use conflicts.

  Park managers will continue to use the transportation system to manage visitor use and distribution within Zion Canyon, according to the need to protect resources and provide quality visitor experiences. Visitor use of specific features or trails will continue to be managed or limited on a case-by-case basis to protect key visitor experiences.

  Park staff will periodically conduct visitor surveys to determine visitor satisfaction with the shuttle system and to determine if congestion is occurring in other parts of the park. Park managers will emphasize visitor education, including pretrip planning regarding the need for and use of the shuttle system.

VISITOR INFORMATION, ORIENTATION, INTERPRETATION, AND ENVIRONMENTAL EDUCATION

The National Park Service uses a variety of methods to orient visitors to Zion, provide information about the park, and interpret the park's resources for visitors. The "Zion National Park Interpretive Plan" (NPS 1996a) describes interpretation goals and objectives and interpretive themes. The interpretive plan specifies what park staff will do to provide visitors with information, orientation, and interpretation. The 1996 plan also addresses interpretive media, such as wayside exhibits, bulletin boards, and signs.

- **Desired Conditions:** The National Park Service makes pretrip information available to assist visitors in planning a rewarding visit to the park. Park staff use radio announcements, web sites, mailouts and reservation systems to assist visitors with preplanning. When visitors arrive at Zion, park staff provide information to orient them on what to do (and what not to do), attractions to see, and how to enjoy the park in a safe, low-impact way. Interpretive programs connect the visitor to the park's resources, build a local and national constituency, and gain public support for protecting the park's resources. Outreach programs through schools, organizations, and partnerships build emotional, intellectual, and recreational ties with the park and its cultural and natural heritage.

- **Strategies:** Park managers will continue to implement the park's interpretive plan, with emphasis on providing information, orientation, and interpretive services in the most

effective manner possible. Staff will use state-of-the-art technologies where appropriate.

Park staff will stay informed of changing visitor demographics and desires to better tailor programs to visitor needs and desires. They will develop interpretive media supportive of the park purposes and significant resources.

Working with other federal agencies, the state of Utah, and local communities, park staff will take action to improve pretrip planning and provide enroute information and orientation for park visitors. Park staff will work with local communities and other entities to provide information/orientation and interpretive facilities outside park boundaries where appropriate. Park staff also will seek partnerships with other state and national parks, educational institutions, and other organizations to enrich interpretation and educational opportunities regionally and nationally.

The park evacuation plan and warning system for flash floods will remain in effect. Park staff will continue efforts to educate the public regarding flood hazards and place signs at all new facilities when appropriate to warn of flash flood hazards.

MANAGEMENT OF THE RECOMMENDED WILDERNESS AREA

In 1978, the president recommended to Congress that 120,620 acres within Zion National Park be designated as wilderness and an additional 10,364 acres be identified as potential wilderness. The National Park Service is currently recommending that 132,615 acres (90% of the land under federal jurisdiction within Zion National Park) be designated as wilderness; 4,175 acres of private lands and water rights within the park boundary remain identified as potential wilderness additions. These adjustments to the 1978 acreage figures are due to (a) the acquisition of several inholdings, state surface and mineral rights, grazing rights, and water rights, (b) the use of geographic information system data, which more accurately delineates the original (recommended) wilderness boundary, and (c) the correction of an error regarding a preexisting private water right on Camp Creek.

- **Desired Conditions:** All of the lands within the recommended wilderness area retain their wilderness characteristics and values. Visitors continue to find opportunities for solitude and primitive, unconfined recreation. Signs of people remain substantially unnoticeable. The area continues to be affected primarily by the forces of nature.

- **Strategies:** Within the next five years, park staff will complete a wilderness management plan, which will include the establishment of specific visitor carrying capacities. Components of the wilderness management plan will address climbing/canyoneering, river recreation, and the potential for commercial guide services. In the meantime, and in keeping with established NPS policies and *Director's Order 41* ("Wilderness Preservation and Management"), the park staff will continue to manage the area recommended for wilderness designation as wilderness.

The park's wilderness committee will also apply a minimum requirement assessment, as defined in *Director's Order 41*, to all activities affecting the wilderness resource and character. The minimum requirement assessment determines whether or not a proposed management action is appropriate or necessary for the administration of the area as wilderness. If the project is deemed appropriate or necessary, the management method selected will be that which causes the least amount of impact to the physical resources and experiential characteristics of the wilderness. The park staff will also continue to take appropriate action to limit visitor impacts on resources to maintain wilderness values (see also the "Visitor Use and Experience" section).

LEVELS AND TYPES OF PARK DEVELOPMENT

A variety of different types of development exist in Zion to transport, house, inform, and serve visitors and park staff. Most visitor and operational developments are concentrated at the south park entrance and in Zion Canyon. Some of these developments are adequate to meet visitor and park needs; other developments, such as some employee housing, do not meet NPS standards.

- **Desired Conditions:** Park development is the minimum necessary to serve visitor needs and provide for the protection of park resources. Visitor and management facilities at Zion and its concessioners meet sustainability standards, and are harmonious with park resources, compatible with natural processes and surrounding landscapes, aesthetically pleasing, and functional. The Park Service continues to provide access to and use of Zion's facilities for physically and learning disabled visitors, in conformance with applicable laws, regulations, and NPS policies.

- **General Strategies:** Park staff will properly maintain and upgrade existing development using sustainability principles where necessary to serve the park mission. They will consider and plan for flood hazards and mitigation efforts as appropriate.

  Park managers will consider the availability of existing or planned facilities in nearby communities and adjacent lands when deciding whether to construct new developments in the park. This will ensure that any additional development in the park is necessary, appropriate, and cost-effective.

  The National Park Service will continue to strive to make affordable housing available within commuting distance of the park (60 minutes), for park staff who are nonemergency response personnel, seasonal employees, lower graded employees, occupants of historic quarters, and concessioner employees.

  The National Park Service will modify existing facilities to meet accessibility standards as funding allows or as facilities are replaced or rehabilitated. Park staff will periodically consult with disabled persons or their representatives to increase awareness of the needs of the disabled and to determine how to make the park more accessible.

  Entrance stations will remain on the south and east boundaries of the park (along the Zion-Mt. Carmel Highway), and at Kolob Canyons. Entrance fees will continue to be collected at these stations.

  Park managers will work with other governmental, private, and nonprofit organizations to find partners and funding sources for a research/environmental education facility and to explore locations within and outside the park to establish the facility.

  The National Park Service also will continue to seek opportunities to build the other management facilities called for in the *Development Concept Plan, Zion Canyon Headquarters* (1994b) and the 1997 *Canyon Transportation System Environmental Assessment* (NPS 1997a).

UTILITIES AND COMMUNICATIONS FACILITIES

Basic utilities and related access are necessary within the park to support visitor services and administrative operations and to provide for visitor and employee safety. Occasional maintenance, upgrades, and minor route adjustments are carried out within existing corridors.

Currently, a transmission line right-of-way and a road easement cross the park. The transmission line provides electric power to Rockville, Springdale, and the park's south entrance and main Zion Canyon area. The road easement in effect, between Interstate Highway 15 and the Kolob Canyons visitor center, provides access to a water tank on private lands. This easement includes maintenance of an existing privately owned water line buried in the road corridor.

- **Desired Conditions:** Utility and communications facilities support park operations and public safety with a high degree of reliability, anticipate future loads and needs, minimize impacts on park resources, and are jointly located with other existing facilities and rights of way to the greatest extent possible. Only those communications facilities necessary to provide for public safety and administrative efficiency are located in the park.

- **Strategies:** New or reconstructed utilities and communications infrastructure will be located in association with existing structures and along roadways or other established corridors in developed areas. This will allow ready access for repair and maintenance, thereby reducing potential visual quality impacts and resource disturbance from overland transport of vehicles and equipment.

  When utilities require reconstruction or extension into developed areas not currently serviced, park staff will select routes that will minimize impacts on the park's natural, cultural, and visual resources. Rights-of-way will continue in effect or be established for service lines to existing and planned park facilities (including concessions facilities). Rights-of-way will be granted for utilities, water conveyance, or other facilities within potential, proposed, or designated wilderness areas except where valid existing rights are established.

  Utility lines will be placed underground to the maximum extent possible.

  In the southwest corner of the park, a right-of-way exists for a powerline serving Rockville, Springdale, and the park. Due to concerns regarding the age of the infrastructure and growth in the communities, Utah Power and Light has proposed to reconstruct a higher capacity line between 2001 and 2003. The existing right-of-way for the powerline on the Zoning map in this plan is shown as an administrative zone. A separate environmental analysis will be conducted to evaluate routes

for the proposed new powerline, including alternatives within and/or outside the park. Park staff will work with the utility company to analyze and select alternative techniques and routing to minimize potential impacts on the park's natural, cultural, and visual resources. Public involvement through the National Environmental Policy Act process will be solicited.

There is potential for natural gas service to the park, Springdale, and Rockville, routed along State Highway 9. If this possibility materializes, park staff will work with the service company, local communities, and the public to locate the line in a manner that minimizes the effects to park resources. A right-of-way will be established for natural gas distribution lines to NPS facilities within the main Zion Canyon area.

Maintenance of the existing NPS radio system will be continued with solar-powered repeaters at existing sites.

Additional park communications equipment is anticipated for the operation of the Zion Canyon transportation system and providing needed coverage along the Kolob-Terrace Road. These are minimal facilities, which will be located in administrative areas or co-located with existing radio facilities.

Commercial telecommunications applications (Telecommunications Act of 1996) will be processed in accordance with NPS policies (RM-53) and NEPA guidelines. The primary tests for the applications will be whether there is a documented public safety need, whether or not there are feasible alternatives, and whether a facility will result in derogation of the resources, values, and purposes for which the park was established. For NPS and commercial communications needs there will be no facilities located within potential, proposed, or designated wilderness areas (Wilderness Act, 16 USC §1131), except as specifically provided by law or policy.

SUSTAINABILITY

Sustainability can be described in this context as the result achieved by conducting activities in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of developments and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques.

Over the past several years, the federal government has been placing more emphasis on adopting sustainable practices. In particular, Executive Order 12873 mandates federal agency recycling and waste prevention, and Executive Order 12902 mandates energy efficiency and water conservation at federal facilities.

- **Desired Conditions:** All decisions regarding park operations, facilities management, and development in Zion — from the initial concept through design and construction — reflect principles of resource conservation. Thus, all park and park operations are sustainable to the maximum degree possible and practical. New developments and existing facilities are located, built, and modified according to the *Guiding Principles of Sustainable Design* (NPS 1993) or other similar guidelines. The park has state-of-the-art water systems for conserving water, and energy conservation technologies and renewable energy sources whenever possible. Biodegradable, nontoxic, and durable materials are used in the park whenever possible. Park personnel promote the reduction, use, and recycling of materials and avoid as much as possible materials that are nondurable, environmentally detrimental, or that require transportation from great distances.

- **Strategies:** Park staff will work with experts both in and outside the agency to make Zion's facilities and programs sustainable.

  Park managers will perform value analysis and value engineering, including life cycle analysis, to examine the energy, environmental, and economic implications of proposed park developments.

  Park staff will support and encourage the service of suppliers, contractors, and concessioners that follow sustainable practices.

  Park interpretive programs will address sustainable park and nonpark practices.

Primary Planning Issues and Concerns

The planning team identified a number of key issues and concerns facing Zion National Park based on discussions with park staff, interested agencies and organizations, and the general public. Many of the issues revolve around the increasing number of visitors, the resulting impacts on park resources, and the quality of the visitor experience. The *General Management Plan* provides a framework or strategy for addressing these issues. This section summarizes the key issues and concerns of this document.

This plan will not answer specific questions about the operation of the shuttle system in Zion Canyon, such as the number and types of shuttles, frequency of shuttles, shuttle operating times, and locations of most shuttle stops. Decisions regarding these elements were presented in the *Canyon Transportation System Environmental Assessment* (NPS 1997a) and the subsequent "Finding of No Significant Impact."

Visitation to Zion has grown dramatically over the past two decades.

INCREASING VISITOR USE

Visitation to Zion has grown dramatically over the past two decades. The number of people camping in the backcountry has risen each year, from 7,807 users in 1986, to 21,002 users in 1999. The park's campgrounds are generally full to capacity during the peak months from June through September. Increased visitation is resulting in resource impacts and crowding of some backcountry trails and frontcountry areas.

While most of the park's resources are in good condition, in some areas visitors are inadvertently damaging natural and cultural resources by creating multiple social trails (i.e., unofficial trails formed by visitors). The formation and use of these trails result in trampled vegetation, eroded soils, stirred up sediments in rivers and streams, and displaced and collected surface artifacts.

Although most visitors rate their experiences in Zion as high, they still express concern about some aspects of the visit. Some visitors feel there are too many people in some areas of the park. These visitors suggest limiting the use of the park based on established carrying capacities or other criteria. Another segment of the public wants Zion to continue to be available to all visitors and believes the way to address crowding is not through limits, but by increasing visitor facilities and access, or redistributing visitors to less used areas of the park.

About 90% of Zion is recommended for wilderness designation. Under NPS policy, this area must be managed as if it were established wilderness. This obligation carries with it certain expectations for visitors, such as the opportunity to experience solitude and quiet. But these opportunities cannot always be met in some areas of the backcountry due to the behavior and number of other visitors.

The National Park Service must determine the conditions (i.e., resource conditions, visitor experiences) for which Zion National Park should be managed. If park managers allow use levels to increase further, the potential for resource damage will increase and opportunities for quality experiences, such as solitude, will likely decline. If park managers regulate or restrict use levels, resources can be better protected, but visitors will have less freedom to go where and when they choose. If park managers limit use in one area and displace visitors there, other areas within or outside the park may receive higher use levels and resource impacts.

FUTURE OF RESEARCH NATURAL AREAS (RNAS)

Research natural areas are areas administratively designated by federal land management agencies for research and educational purposes and/or to maintain biological diversity. Research natural areas typically preserve examples of ecological communities that have been little disturbed in the past, and in which current natural processes are allowed to continue with minimal human intervention. Uses in research natural areas are restricted to research that samples but does not alter the existing condition, and educational activities that do not detract from the areas' research values. Federal land management agencies, including the National Park Service, have established a national network of research natural areas.

Zion National Park currently has three areas designated as research natural areas: Bighorn (8,313 acres), West Rim-Phantom Valley (22,409 acres), and Kolob Mesas (279 acres). Bighorn and West Rim-Phantom Valley were designated

as research natural areas in 1942, while Kolob Mesas was designated as a research natural area in 1966. Parunuweap Canyon also has been considered for designation. Park staff raised questions regarding the rationale for the three existing park research natural areas, which have not been consistently managed with the intent of the designation and NPS guidelines. Although recreational use is not generally allowed in research natural areas nationally, most of the currently designated Zion research natural areas are open to recreational use.

Park managers must determine whether the existing research natural areas meet park resource management goals or whether management of better-defined research natural areas is needed. If these areas are managed as intended under NPS policy, then potential impacts on many of the park's natural and cultural resources will be avoided, but much of the park will be closed to the public. If park managers establish a management designation that permits certain uses in research natural areas, potential impacts may result, and questions concerning how Zion's research natural areas relate to the national system may arise.

PUBLIC USE OF PARUNUWEAP CANYON

In 1992, park managers closed Parunuweap Canyon for recreational use, pending completion of this planning effort. There are differing opinions on whether or not this area should be opened to the public. Some people want the canyon to be opened for unlimited recreational use, others prefer the canyon to be opened only for strictly regulated recreational use. Still others support keeping the canyon permanently closed to recreational use to prevent impacts on sensitive cultural and natural resources.

Park managers must determine whether or not to open Parunuweap Canyon to the public. If the canyon remains closed, the special resources in this area will be protected, but visitors will not be able to access this area. If this area was open to the public, impacts on the canyon's natural and cultural resources will increase. If the canyon was open to limited public use, park managers must answer questions regarding how many people should be allowed into the area, at what times, and at what points. Some people who want to see the area may not be able to do so at the time of their choosing.

FUTURE OF ZION CANYON LODGE

The Zion Canyon Lodge operation has been a traditional use in Zion for more than 80 years. It has enabled many visitors to stay in the park by providing overnight accommodations and food services. Although the lodge is the only place offering these visitor services within the park, other facilities and services are available in Springdale and nearby communities. Some people believe the lodge should continue to operate, arguing it is a special part of Zion's history, and offers a unique visitor experience and services that add to visitors' enjoyment of the park. Others argue that the lodge is inappropriate and unnecessary in a national park, that it encourages crowding and resource impacts. These people believe the lodge should be closed or converted to another more appropriate use.

The National Park Service must determine whether or not to continue the current opera-

tion of the Zion Canyon Lodge. If the lodge remains open as it is now, many people will continue to gain a special experience staying overnight in the park. However, resource impacts also will continue in the area, and the lodge will continue to take away potential customers from businesses in Springdale. If the lodge was closed, some resource impacts will decrease in the area and businesses in Springdale may benefit. However, a special visitor experience now offered in the park will be eliminated and adversely affect the lodge employees and the employer.

WILD AND SCENIC RIVER DESIGNATION

Both the public and park staff expressed concerns about maintaining the free-flowing condition and other outstanding values of rivers and streams in and adjacent to Zion. Other citizens are concerned that designating drainages in and adjacent to Zion as wild and scenic rivers will impinge on visitor activities and freedoms. The Wild and Scenic Rivers Act requires federal land managers to consider potential national wild, scenic, and recreational rivers in planning for water and land resources.

The National Park Service and Bureau of Land Management must determine whether or not to recommend that the drainages in and adjacent to Zion be designated as part of the wild and scenic rivers system. Making such a designation will provide additional protection to the park's drainages and may attract additional visitors to the park. On the other hand, if increased use occurs, the designation may result in additional resource impacts in the drainages.

MANAGEMENT OF THE NORTH FORK OF THE VIRGIN RIVER

Recreational use of the North Fork of the Virgin River in Zion Canyon has dramatically increased in recent years. Visitors kayak the river in the spring, and swim and wade in the river during the summer. Concerned citizens have raised questions regarding how the Park Service should manage the North Fork in the future. These questions include:

- What types of recreational uses are appropriate for the river environment and the visitor experience?
- Should the upper portion of the North Fork in Zion Canyon continue to be channelized or should it be restored to more natural conditions?
- If part of the river is restored, what effect will it have on the Zion Lodge, the road, and use of the canyon?

Park managers must determine the appropriate uses for the North Fork of the Virgin River and whether or not to restore the river channel and its floodplain. Limiting certain uses will reduce or eliminate resource and visitor impacts, but this will also reduce the diversity of experiences offered in the park.

Restoring part of the river's floodplain will be consistent with the park purpose to preserve the dynamic processes that formed the canyon. The riparian forest community along channelized reaches of the river has lost viability as evidenced by the even-aged, decadent overstory with no recruitment of new trees. Similar occurrences have been documented throughout the West where there has been a loss of connectivity between rivers and floodplains due to channelization, channel entrenchment, or control of floods downstream of reservoirs. To reproduce, most riparian tree and shrub species need the disturbance and watering provided by floods and channel migration. Historic photographs of Zion Canyon, and comparisons with similar river channels elsewhere, show a much more active channel and greater use of the floodplain. Surveys in Zion have shown that Virgin spinedace populations are much higher where the river has not been channelized than where it has.

River restoration will reestablish a natural morphology and riverine ecology and maintain or restore habitat for aquatic and floodplain species. The level of restoration will determine the extent of impacts on the park road, footbridges, and lodge; the level of visitation in Zion Canyon; and the degree to which visitors face safety hazards when the river floods.

Although the plan focuses on what types of recreational uses are appropriate for the river and whether or not the river floodplain should be restored, detailed questions about the management of the river will not be answered. Specifically, this plan will not answer questions regarding appropriate use levels, use management techniques, and the degree of restoration of the floodplain. A future detailed river management plan will address these questions.

DEVELOPMENT AND USES ADJACENT TO THE PARK

The population in the region around the park has been rapidly growing. As more people move into the area, residential and second-home development has been increasing on lands adjacent to the park. There most likely will be more development in the future, particularly near the south entrance, the Kolob Canyons entrance, and on land east of the park. Private developments and management practices may affect the scenic views from the park, night sky, ambient sound levels, solitude, soil erosion, composition of native plant and animal communities, and wildlife migration/ habitat corridors. Access may be restricted or closed off to parts of the park.

Park managers must determine how to manage park resources in light of the development that is occurring, or may occur, adjacent to the park. If no actions are taken, park resources and the visitor experience will most likely degrade in parts of the park. Current access may be restricted or eliminated in some parts of the park.

Issues to be Addressed in Future Plans

Several other issues are of concern to park managers and visitors at Zion National Park, which are summarized below. The *General Management Plan* provides some directions and lays the groundwork for addressing these issues. However, future implementation plans will provide specific directions and actions that deal with these issues. Opportunities for public input will be provided in developing these implementation plans.

CARRYING CAPACITY

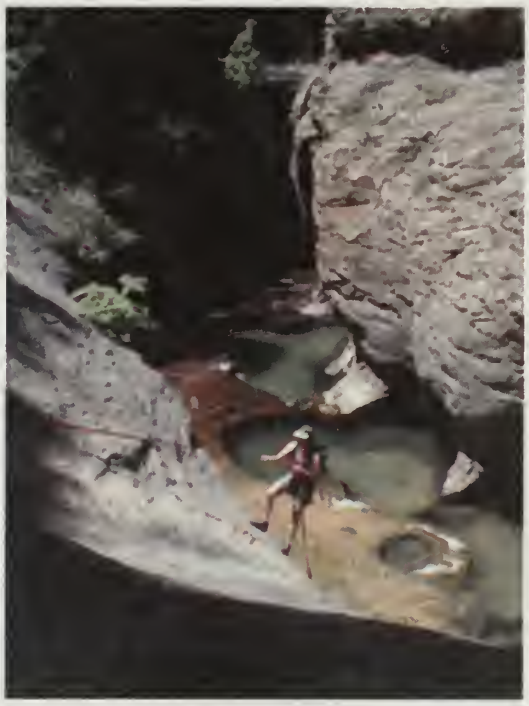
Within the next five years carrying capacity studies will be completed for the park. These studies will serve as components for future plans such as the wilderness management plan. The 1978 Parks and Recreation Act requires parks to address carrying capacity, and it is essential in order to protect resources and provide a quality visitor experience. While the *General Management Plan* addresses carrying capacity qualitatively, a more scientific approach is needed to determine appropriate resource and visitor experience conditions. A VERP process or similar one will be used to collect additional data on visitor experiences and resource conditions, establish indicators and standards for each zone, and set up a monitoring program to determine whether conditions are acceptable or unacceptable. This process will allow management to take action to ensure resources and visitor experiences do not deteriorate to an unacceptable level. In the meantime, interim carrying capacities for the primitive and pristine zones have been established based on current levels of use and resource protection needs.

WILDERNESS MANAGEMENT

About 90% of the park is recommended wilderness and is managed as wilderness. It is essential that these areas be managed to protect the wilderness characteristics and values, both for the resource value itself as well as for the visitor's wilderness experience. As backcountry use is expanding dramatically, it is increasingly difficult to protect resources and manage for solitude and primitive recreation. A comprehensive plan is needed to address wilderness management. The park staff will complete a wilderness management plan within five years. This plan will follow NPS policy, including the minimum requirement process, to determine appropriate uses and levels of use in wilderness. In addition to carrying capacity, the wilderness management plan will specifically address climbing/canyoneering, river recreation, and the potential for commercial guiding (see each description below).

CLIMBING AND CANYONEERING

Climbing and canyoneering are two activities that have dramatically risen in popularity in recent years. These activities have the potential to adversely affect park resources, defacing rock faces, disturbing cultural resources, disturbing sensitive species (e.g., peregrine falcons, spotted owls, and desert bighorn sheep), trampling vegetation, and forming social trails. Climbing/canyoneering will be addressed as a component of the wilderness management plan.



RIVER RECREATION

Concerns have also been expressed about the impacts of river recreation. Visitors kayak the North Fork of the Virgin River in the spring, and swim, wade, and hike portions of the river in the summer. There are concerns about the impacts of these activities on water quality (e.g., increased sedimentation and turbidity, spread of human waste), soil erosion, sensitive species,

and the disturbance of other visitors, particularly in the Zion Narrows.

Concerns regarding the use and management of the North Fork will be addressed in a river management plan.

NATURAL SOUNDS, NOISE, AND AIR TOURS

Natural sounds (e.g., water flowing, wind blowing through trees, birds calling) are a resource that contributes to the visitor experience in all parts of the park. Natural sounds predominate in most of Zion; however, mechanical and other human-created sounds can be a problem in some areas. Noise from aircraft can be heard throughout the park. In the frontcountry (Zion Canyon), some visitors complain that the sounds of automobiles and buses, generators, motorized equipment, and other people at times interfere with the natural sounds of the park. The intrusion of human-generated noise in the backcountry may negatively affect visitors' experiences. In particular, there is concern that the noise generated by an increase in low-flying aircraft or commercial jets will impair visitors' ability to hear natural sounds and detract from the experience of solitude. Human-generated noise can also affect the behavior of some animals, depending on the type, frequency, and level of noise, especially during sensitive periods such as the breeding season.

Park managers must determine what activities produce, or can produce, unacceptable noise levels in the park consistent with management zoning. If sources of man-made noise are limited or prohibited, natural ambient sound levels will be maintained, and potentially negative impacts park resources on visitors' experiences may be avoided. But this action also will reduce the range of scenic viewing opportunities.

Questions pertaining to air tours will be addressed in a future air tour management plan while other noise issues will be covered in a soundscape preservation and noise management plan.

GUIDE SERVICES

Currently, guided hiking or climbing activities in the park are not permitted. NPS staff-led activities include visitor center and evening programs, and ranger-led hikes. Some visitors and guiding organizations have requested that guided activities be allowed in Zion, believing these operations will enhance many visitors' experience, reduce potential impacts, and help prevent accidents. Other people believe that guided activities should not be permitted, arguing that these operations will increase use in already overcrowded areas and displace or impact nonguided users. Many questions exist regarding what guided services (e.g., guided hiking, bicycling, climbing) are appropriate in the park. Other questions relate to when and where the services should take place and to what extent.

The wilderness management plan and carrying capacity studies will determine whether or not to permit guided activities in Zion. Permitting guided services will have both positive and negative impacts, as noted above.

AIR QUALITY

Long-range transport of air pollutants from industrial sources and large urbanized areas, increased numbers of visitors, and increased development in the region as well as near the park boundary have the potential to adversely affect Zion's air quality. Although the park's shuttle system has helped to reduce air pollution in Zion Canyon, increased vehicular traffic in Springdale and other parts of the park may increase air pollution. Smoke from campfires in the summer and from residences with wood stoves in the winter is sometimes evident in the canyon in early mornings and evenings. Local trash burns, prescribed burns, and administrative maintenance burns can also produce temporary reductions in air quality.

WATER QUALITY AND QUANTITY

A number of water resource issues exist in Zion, including water quality and flood hazards. Impacts on water quality have occurred in parts of the park due to recreational use and livestock grazing outside the park. Changes in water quality and water flows can have major effects on park resources and visitors. A parkwide water resources management plan will address these issues and other scientific and legal requirements to promote understanding and management of park waters.

NIGHT SKY

Viewing of the night sky is an important aspect of visitors' experiences in Zion National Park. Outdoor lighting in developed areas of the park and in surrounding communities can negatively affect the night sky. As neighboring communities continue to grow, the potential for light pollution affecting the night sky visibility will increase. Actions and strategies will be developed to mitigate or eliminate impacts of artificial lights as part of the resource management plan.

CULTURAL RESOURCES

Unmanaged visitor use at archeological or historic period sites can impact the integrity and

scientific value of these sites. The nature and extent of these impacts can be difficult to assess because baseline data on site conditions are often unavailable or incomplete. In recent years, park staff has implemented site monitoring and site condition assessment programs to aid in developing long-term protective strategies for significant sites that may be impacted by visitors.

Park managers must maintain historic buildings on an ongoing basis (i.e., cyclic maintenance and rehabilitation) to ensure that conditions are suitable for national register eligibility.

Cultural resources management will be addressed in the park's resource management plan.

Introduction

CONCEPT

The *General Management Plan*, which the National Park Service will implement for Zion National Park over the next 20 years, is intended to safeguard the future integrity and diversity of park resources and provide for a range of quality visitor experiences within that context. Management of resources and visitors will be emphasized rather than providing new developments — any proposed developments will be intended primarily to protect resources and secondarily to improve visitor experiences. Visitors will have opportunities to participate in a variety of park experiences, ranging from social to wilderness experiences. Park managers will establish a framework to proactively address impacts that result from increased visitor use levels. For the first time, management zones will be applied throughout the park to identify desired resource and visitor experience conditions and to set the basis for determining visitor carrying capacities. With prescriptions for resource conditions and visitor experiences, managers can take actions, including setting limits, to ensure that Zion's resources are unimpaired for future visitors to enjoy.

VISION FOR FRONTCOUNTRY AREAS

The frontcountry experiences will vary dramatically throughout the park. Visitors traveling to the Kolob Canyons area can expect to leave an intensive, high-speed feeling from travel on I-15 and be immersed almost immediately in the scenic grandeur of the Kolob Fingers — an especially inviting trip at sunset when the sandstone cliffs almost glow. The natural environment will be largely undisturbed, and visitor facilities will serve to assist in the transition and serve as an information source for the trails accessible along the scenic drive.

An even more rural experience will be gained by travel along the Kolob-Terrace Road, connecting the town of Virgin to the pine-covered plateaus north of the park. A few small visitor facilities along the road and at Lava Point will continue to reflect the low intensity, remote nature of the park.

When driving to the park's south entrance, visitors will be treated to a decompression zone after they leave I-15. They will travel through small communities and then follow the scenic corridor where the sandstone formations of Zion and nearby BLM areas are protected from development. Visitors arrive via State Route 9 in the town of Springdale, which is nestled on three sides by Zion National Park. They will find that Springdale reflects the mood and feeling of being in the park. The streetscape will reflect the rustic architecture found in the park, and there will be a seamless effect provided by the transportation system shuttle stops. The emphasis on pedestrians will cause one to slow down mentally as well as physically. The visitor center located just inside the park boundary will simplify this relaxation approach, encouraging visitors to stroll through the facility, gaining an appreciation for the park's resources and learning how best to use the transportation system.

Definitions of Planning Terms

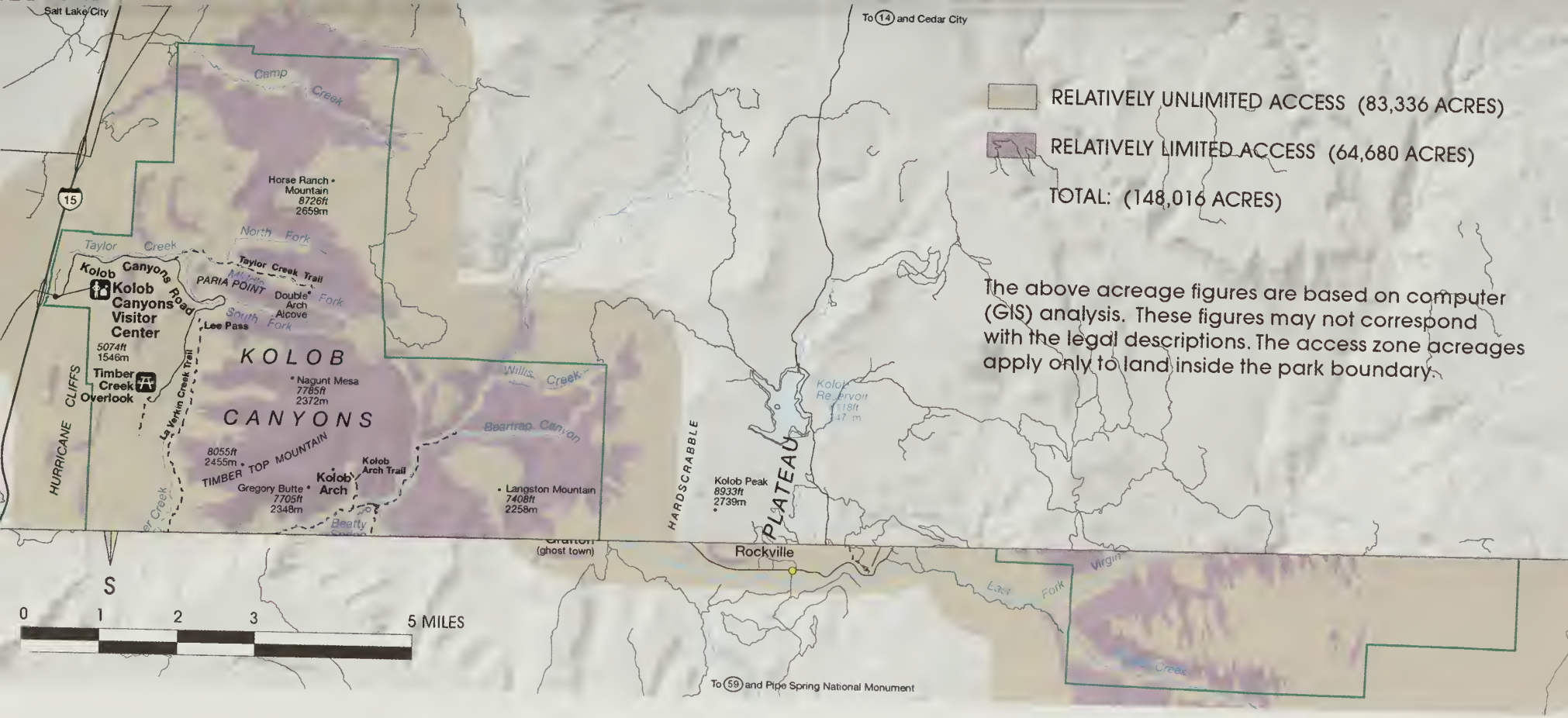
The following terms are used throughout this document.

Desired conditions refer to the goals or end results park managers are striving to achieve. The NPS can set desired conditions for park resources, visitor experiences, management activities, and facilities. Desired conditions reflect the park's purposes and mission goals, and ensure that the NPS preserves Zion's resources and provides quality experiences.

General management strategies describe the general actions park managers intend to take to achieve the desired conditions. These strategies are not tied to management zones. They may apply parkwide (e.g., general visitor use management) or to specific geographic areas or facilities (e.g., Zion Canyon Lodge).

Management zones identify how different areas in the park will be managed to achieve a combination of desired conditions. Each zone prescribes a unique combination of physical, biological, social, and managerial conditions.

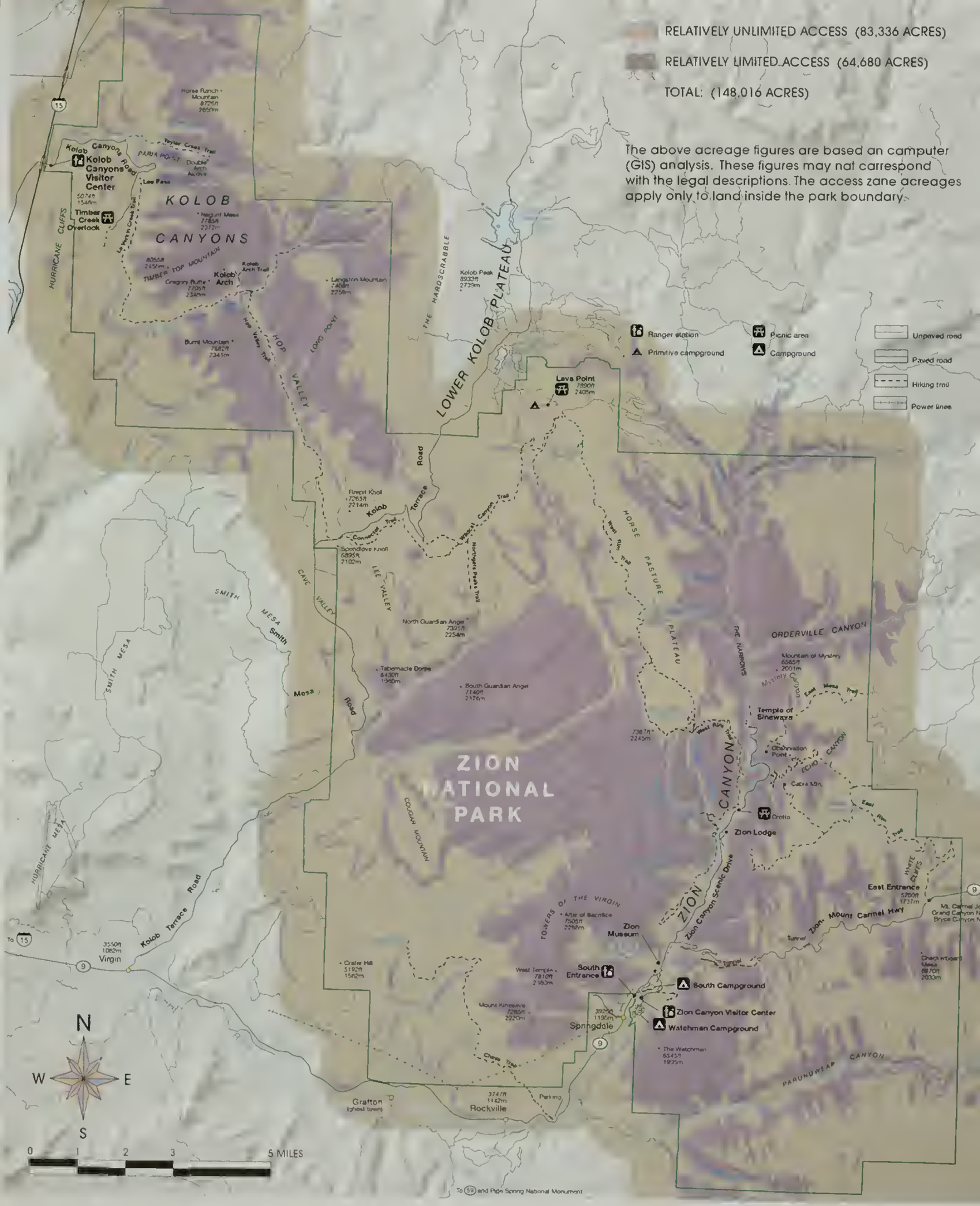
Zone-specific management strategies describe the actions that would, or could, be taken to achieve the desired resource conditions and visitor experiences for a given zone.



Areas of Relative Inaccessibility

Zion National Park, Utah

United States Department of the Interior • National Park Service
DSC•August 2000•116•20031



Areas of Relative Inaccessibility

Zion National Park, Utah

United States Department of the Interior • National Park Service
DSC • August 2000 • 116 • 20031

A rural atmosphere will again be provided for those visitors entering the park from Mt. Carmel Junction along State Route 9. Opportunities for park orientation may be developed along the way. Inside the park, the Zion-Mt. Carmel Highway will stay as is, with opportunities for scenic viewing of the cross-bedded Navajo sandstone being the prime visitor experience on the park's eastside.

Natural processes and landscapes in the front-country will be unaltered, except within or directly adjacent to the limited developed sites. In these areas, alterations will blend in with the natural landscape.

VISION FOR BACKCOUNTRY AREAS

About 90% of the park has been recommended for designation as wilderness. Visitors entering this area will expect to find quiet and solitude and experience Zion where natural conditions prevail. The only sounds heard here will be natural sounds. Natural processes and the landscape will be unaltered, except for minimal developments such as designated campsites, trails, and routes in some areas.

Visitors to the backcountry will be exposed to the value of wilderness in its own right, as a part of the American heritage. This natural environment, away from social pressures, tension, and stimuli brought by civilization, will allow the visitors to experience the restorative and spiritual powers of wilderness.

These backcountry areas will also allow people to examine ecosystems as they have evolved outside significant human influence. They will provide a source of information for people to learn about natural processes, species diversity, and the importance of physical and biological systems.

In particular, land zoned pristine, primitive, research natural areas (RNA), and some portions of the transition zone will be managed for wilderness values. A large percentage of these areas in the backcountry of Zion is inaccessible due to steep topography (see Areas of Relative Inaccessibility map on page 29). Existing trails and routes throughout the backcountry reflect the character of wilderness and are managed to maintain the wilderness resource. In these areas visitor use will be managed to ensure these visitor experiences and resource conditions retain their wilderness character.

Summary of the Management Zones

Zion will be divided into different zones. These zones identify how the different areas of the park will be managed to achieve desired resource and social conditions and to serve recreational needs. The zones are intended to protect park resources and make a range of quality activities available for visitors. The zones give visitors an understanding of where certain activities are and are not allowed. They also tell park managers where development can and cannot be added and the intensity of management that is appropriate in different parts of the park.

The key elements of the zones are summarized below. (Appendix C describes additional details on the zones.) It is important to note that three of the zones place interim limits on the number of people, and one of the zones places an interim limit on saddle stock groups in the backcountry — managing group sizes and encounters with other groups will affect how many people can go into different areas in the park. These limits will be re-examined in the carrying capacity studies and possibly modified in the subsequent wilderness management plan.

FRONTCOUNTRY HIGH DEVELOPMENT ZONE

This zone will provide visitors with highly structured opportunities to enjoy and learn about the park by means of motorized, primary roads. In essence, visitors will feel that they are in a pocket of civilization surrounded by the park's natural beauty.

- Both natural processes and the natural landscape will be highly modified.
- A wide array of visitor services and facilities will be available, including primary motorized roads, visitor centers, and developed campgrounds.
- Visitors will experience highly social conditions, although there will be some opportunities at certain times for solitude.
- Limits will only be placed on the numbers of people to address resource protection concerns or facility design capacities.

FRONTCOUNTRY LOW DEVELOPMENT ZONE

Visitors will have a fairly structured, rural experience oriented around motorized sightseeing on secondary roads, camping, picnicking, and taking short walks.

- Natural conditions will be unmodified in most of the zone.
- Basic facilities and services will be provided, but they will be fewer and less concentrated than in the frontcountry high development zone. Focused visitor facilities, secondary roads, picnic areas, and less developed campgrounds are examples of facilities that may be present.
- There may be opportunities to camp in campgrounds.
- There will be few opportunities for solitude, but the social environment will remain uncrowded.
- Limits will only be placed on the numbers of people to address resource protection concerns or facility design capacities.

TRANSITION ZONE

The main purpose of this zone will be to allow visitors to view or directly access many of the park's prime resources by means of nonmotorized, well-developed, high use trails.

- Natural processes and landscapes may be altered or manipulated in developed areas, but most of the landscape will be largely undisturbed and the resources protected.
- This will be a day-use zone. Only minimal facilities (e.g., trails) will be present. Park managers will concentrate visitor use within or near these facilities.
- During the peak season, there will be a low expectation of solitude due to the sights and sounds of other people. However, crowded levels will not keep visitors from reaching desired destinations or viewing outstanding park features.
- Limits will only be placed on day use to address resource protection concerns or facility design capacities.

PRIMITIVE ZONE

This zone will provide better opportunities for visitors to experience wildlands and solitude than the zones described above. However, compared to the pristine zone, access will be easier into this zone, there will be signs of people, and the area will feel less remote.

Definitions of NPS Visitor Facilities

The following types of NPS facilities are present in the development zones.

Full-service visitor centers provide a variety of services including: restrooms, orientation, interpretation (e.g., introduction to the park, themes, all manner of interpretive media), trip planning, item sales (interpretive and informational), and fee collection (e.g., as part of trip planning). Park staff will also issue permits at these centers but will not provide food service. Full-service visitor centers will only be allowed in the frontcountry high development zones.

Focused visitor facilities focus on only a few functions. Unlike a full-service visitor center, these facilities provide interpretation related to resources at-hand, and limited, if any, sale items. Restrooms may be present. Focused visitor facilities may be indoor or outdoor, and be staffed or unstaffed, depending on need and the services provided. They may be found in both frontcountry low development and frontcountry high development zones.

Picnic sites have tables and may include grills, trash facilities, and restrooms. Water will be provided only if it was already present. In the frontcountry high development zone, many picnic sites may be added to a given area, but in the frontcountry low development zone, the number added may only total a cumulative of 10 sites per area, such as at Lava Point. Picnic sites may be located in frontcountry high development, frontcountry low development, and transition zones.

- The landscape will be largely undisturbed, with natural processes predominating.
- There will be very little development. Only narrow, unpaved trails and/or routes will be maintained. Other facilities related to protecting resources may be provided.
- Primitive camping may be permitted at large or in designated campsites, but camping facilities will not be provided.
- There will be a sense of being in a natural landscape with a moderate sense of solitude.
- Park personnel will manage the number of people in this zone. Hiker group sizes for day and overnight use will continue to be limited to 12 or fewer individuals. A maximum of six saddle stock and six people will be allowed per group. Hikers will generally encounter no more than 12 groups per day in the zone, while saddle stock groups will encounter no more than one other group per day. (Note: All of the above limits are interim limits, which may change in the future.)

PRISTINE ZONE

The pristine zone will offer the feeling of being entirely alone in Zion's remote and isolated wildlands. Visitors will have a chance to experience a natural landscape.

- Natural conditions and processes will be largely undisturbed by people. Bolts on climbing routes may be present. Culturally significant resources also may be maintained.
- Routes and paths may be defined and maintained if necessary to prevent resource damage; no other visitor facilities will be provided.
- Visitors can camp throughout the zone, although in some cases, camping sites will be designated to protect resources.
- Opportunities for a high degree of solitude will be provided throughout the zone.
- Use of these areas will be limited. Saddle stock use will be prohibited. Hiker groups will continue to be limited to no more than 12 people. Visitors will usually not expect to encounter other groups in the zone. (Note: The group sizes and encounter rates are interim limits, which may change in the future.)

RESEARCH NATURAL AREA ZONE

A research natural area (RNA) is an administrative designation that federal land management agencies use to designate field ecological areas primarily for research and educational purposes and/or to maintain biological diversity. This zone applies the key conditions of research natural areas. Conducting baseline inventories and long-term ecological observations will be emphasized in this zone, with the primary purpose to create an ecological/environmental benchmark over time. This zone will not be opened to recreational uses, but may be opened to educational uses.

- Research natural areas will be areas with little to no human disturbance.
- No visitor facilities will be present. Trails and temporary research equipment may be permitted in limited instances.
- In general, camping will not be permitted, unless it was essential for meeting research goals and was consistent with other park policies.
- Group sizes for research, educational, and administrative activities will be limited to 12 or fewer individuals. (Note: The group size is an interim limit, which may change in the future.)

ADMINISTRATIVE ZONE

The primary purpose of this zone will be to support the management and administration of the park. General visitation will not occur, although some visitors may need to access these facilities/areas to obtain staff assistance or to solve a problem.

- Natural processes and landscapes will be altered to support park operations.
- The type and level of development and concentration will vary as needed to provide for park operations.
- NPS staff, concession employee, and scientists may be provided with housing, but visitor camping will not be permitted.
- Park staff will not encourage public visitation, although there will be no limits placed on the use of this zone.

Park managers will follow all of the desired conditions and strategies described in "Park Policies and Practices," plus several additional management directions and strategies. These strategies relate to supplying and conserving water, managing visitor use and various levels and types of park development, and managing the North Fork of the Virgin River.

WATER SUPPLY AND CONSERVATION STRATEGIES

In addition to the water quality and quantity strategies described in "Park Policies and Practices," park managers will follow one other strategy to maintain Zion's water quality and improve water conservation in the park.

To evaluate the possibility of restoring springs in Zion Canyon and to explore water conservation techniques, the National Park Service will study water supply and treatment alternatives. This study will examine alternative ways for the National Park Service to obtain drinking water, including the procurement of treated water from Springdale. Any changes in the water supply system will be consistent with the Zion National Park Water Rights Settlement Agreement.

This plan provides a basis for and a management framework to begin to address Zion's carrying capacity.

PARK CARRYING CAPACITY AND VISITOR USE MANAGEMENT STRATEGIES

The National Park Service has long recognized the need to apply the carrying capacity concept to areas under its jurisdiction. The National Parks and Recreation Act of 1978 (Public Law 95-625) requires that general management plans establish a visitor carrying capacity for each national park system unit. This plan provides a basis for and a management framework to begin to address Zion's carrying capacity.

The visitor experience and resource protection (VERP) framework addresses carrying capacity and visitor use impacts on park resources and visitor experiences (NPS 1997b). Under this approach carrying capacity is defined as the type and level of visitor use that can be accommodated while sustaining resource and social conditions that complement the purposes of a park and its management objectives. In other words, carrying capacity is interpreted as a prescription of natural and cultural resource and visitor experience (social) conditions. Under the VERP framework, the park staff, with public input, determines desired resource conditions and visitor experiences in different areas of the park. A monitoring program is established to measure changes in resource and social conditions. From monitoring results, management actions are initiated to maintain desired conditions.

To address carrying capacity, this *General Management Plan* describes desired resource conditions and visitor experiences by management zone. The management zone prescriptions can be seen as setting qualitative carrying capacities for the park — the zones prescribe the appropriate range of visitor uses, resource conditions, developments, and management in each area of the park. However, there are three more integral elements (described below) in the VERP framework, which will be addressed fully in the wilderness management plan and carrying capacity studies to be completed within five years (as described under the "Future Planning and Research Needs " section).

- For each zone indicators and standards are selected. Indicators are specific, measurable variables that can be monitored to determine the quality of natural and cultural resource conditions and visitor experiences. Standards identify the minimum acceptable conditions for each resource or social indicator — the standards indicate when management actions are merited.
- The next element of the framework is long-term monitoring of the indicators. The indicators are systematically monitored in the zones to determine the conditions of resources and visitor experiences. Effective monitoring of resource and social indicators provides the feedback and documentation needed to implement meaningful management action. Monitoring documents if and when a management action is needed to keep conditions within the standards. (Monitoring will be an ongoing task starting with the implementation of this plan. Monitoring needs will be further analyzed as part of the future wilderness management plan and carrying capacity studies.)
- The final element is management action. Management action(s) are taken if resource conditions or visitor experiences are out of

Group Sizes and Encounter Rates

The current backcountry group size limit of 12, which has been in place since about 1982, will continue as an interim limit for the primitive and pristine zones until the wilderness management plan and carrying capacity studies are completed. While a substantial body of scientific literature exists regarding the effects of group size on resources and visitor experiences (see Manning (1999) and Hammitt and Cole (1998)), information specific to Zion is limited. Information collected through the carrying capacity studies during the development of the wilderness management plan should assist park managers in setting appropriate group size limits for the primitive and pristine zones. It may be necessary to impose stricter group size limits than the current limit to meet the desired future conditions for the two zones as described in this plan.

With regard to visitor encounters, the continued growth in backcountry use requires some proactive action now to ensure that resource integrity and the quality of visitor experiences are maintained. Limiting group encounters is one way to ensure that that desired conditions for the primitive and pristine zones are met. The encounter limits proposed in the plan are consistent with encounter rates in other wilderness areas across the country. Like the group size limits, they are labeled as interim limits because additional research, specific to Zion, is needed to determine if these limits are sufficient for protecting resources and ensuring quality visitor experiences in the primitive and pristine zones. The future wilderness management plan will reexamine the encounter rates and modify them if appropriate.

Prior to completion of the wilderness management plan, park managers may institute other interim group sizes or encounter rates in specific areas to address resource damage or visitor safety concerns.

standard or monitoring indicates a downward trend in the condition of the resources or visitor experiences. (Proactive management action will be an ongoing task starting with the implementation of this plan. See the discussion under "Park Policies and Practices" regarding methods that may be used.)

Resource indicators and standards have not yet been set for Zion. Although few formal studies exist documenting resource impacts and impairment in much of Zion due to visitor use, impacts such as soil compaction, erosion, and trampling of vegetation are frequently observed. In addition, other park resources, such as bighorn sheep, are known to be highly susceptible to disturbance. If use levels increase, there is concern that additional resource impacts may occur in the park. Thus, the plan emphasizes monitoring in the front and backcountry to determine resource baselines and trends. The carrying capacity and wilderness management plans will identify which indicators should be monitored and when and where they should be monitored.

PRELIMINARY CARRYING CAPACITIES

Until the wilderness management plan and carrying capacity studies are completed, many of the existing visitor use management policies will not change from current policies. Several carrying capacities already have been set for areas exhibiting resource damage and crowding, such as in the Narrows from the northern park boundary down through Orderville Canyon (a maximum of 80 day hikers per day and 70 overnight hikers at any one time) and the Left Fork of North Creek (a maximum of 50 people per day). Through the operation of the shuttle system visitor use levels are somewhat regulated in the main Zion Canyon. The shuttle system has eliminated much of the vehicle congestion and parking problems — one of the primary carrying capacity problems in Zion Canyon.

Increasing visitor use levels will drive the need to set quantitative carrying capacities in the frontcountry. Current (2000) visitor use levels are generally consistent with the zone conditions. However, as use levels increase there is concern that resource and visitor experience impacts will increase. To address these concerns, carrying capacity studies will establish baseline conditions and identify indicators and standards for the transition, frontcountry high development, and frontcountry low development zones. Monitoring will be done to identify trends in these zones.

This plan sets interim carrying capacities, pending further research, for hikers and saddle stock groups in the primitive and pristine zones. Group sizes and encounter rates with other groups will largely determine the carrying capacities for these zones. In the research natural area zone, interim group size limits have also been set for authorized research and educational groups. As with all the other zones, additional limits may be imposed in specific areas or at certain times if necessary to protect resources.

Definition of Saddle Stock

Saddle stock in Zion National Park are defined as horses, mules, and burros. Llamas, goats, dogs, and all other animals are excluded for use within the park.

Primitive Zone — Hikers. The interim hiker group sizes for day and overnight use will be limited to 12 or fewer individuals. The interim encounter rate will be generally no more than 12 groups encountered per day on any one trail in the zone. These are consistent with the zone prescription that calls for a moderate sense of solitude. Twelve encounters per day is a somewhat higher limit than many wilderness areas in the West, but it is not inconsistent with encounter standards that have been set elsewhere (see Manning 1999). In addition, Zion's rugged backcountry confines most use to existing trails and routes. The great majority of people in the recommended wilderness area use these trails, which will be zoned as primitive. Thus, higher encounter rates will be expected than may be the case in other wilderness areas where use is not as confined due to topography.

Primitive Zone — Saddle Stock. Saddle stock will continue to be permitted on designated trails. Off-trail use of saddle stock will continue to be permitted only in the lower Coalpits Wash from the trailhead to the junction with Scoggins Wash, Scoggins Wash itself, and Huber Wash where the surrounding terrain confines use to the wash bottom. Overnight camping will be permitted only at the designated saddle stock site in Hop Valley, with a group permitted to stay one night. Excluding the trail ride concessioner, the interim saddle stock group size limit will be a maximum of six people per group with six saddle stock. These numbers are consistent with current park regulations. The interim encounter rate limit will be set at no more than one other saddle stock group encountered per day. This will ensure that large numbers of saddle stock will not be present along any one trail at any one time and will therefore avoid impacts to resources and other users.

Pristine Zone — Hikers. The interim hiker group size limit for day and overnight use will be 12 people. The interim encounter limit will be set at zero: visitors will usually not expect to encounter other groups in the zone. These numbers are consistent with the zone prescription, which calls for a high sense of solitude. Zero encounters is a low limit compared to other wilderness areas, but it reflects the rugged, largely inaccessible terrain comprising this zone: one would not expect to find another group throughout most of Zion's rugged and remote areas.

Pristine Zone — Saddle Stock. Saddle stock will not be allowed within the pristine zone. With the exception of upper Coalpits Wash above the springs, this is consistent with park regulations, which are intended to prevent soil erosion, vegetation trampling and denudation, and to avoid impacts to sensitive resources such as microbiotic crusts, riparian habitat, and archeological sites.

CARRYING CAPACITY DATA NEEDS

Based on an indepth study of the park's information (Vande Kamp 1997), the following are the highest carrying capacity social data needs for the park:

- accurate counts of the number of visitors (and groups of visitors) who are currently using specific areas in Zion's recommended wilderness
- the number of encounters experienced by current visitors
- visitor evaluations of social conditions (such as numbers of encounters with other visitors)
- the number of parties camped within sight or sound of current overnight campers
- information about specific sites and activities where the presence of other visitors most clearly detracts from experience quality (e.g., "bottlenecks")
- the characteristics of visitors found at various sites in Zion's recommended wilderness
- changes in visitor use patterns because of the Zion Canyon shuttle system

With regard to carrying capacity, natural resource data needs, the planning team has identified several potential natural resource indicators for Zion:

- number, width, and depth of active social trails
- streambank profiles in riparian areas
- percent groundcover
- percent microbiotic soils
- vegetation species composition
- soil compaction
- soil bacteria, nematode, and fungi community composition

These indicators are appropriate for Zion because the indicators respond rapidly to human disturbance and they measure impacts directly related to human disturbance. The wilderness management plan and carrying capacity studies will establish a monitoring program and standards for some or all of these indicators in different areas of the park.

Other indicators and standards for key natural and cultural resources may be appropriate in Zion, but additional data will be necessary to determine if there are correlations between

human activity and resource conditions. Some of the possible natural resource indicators include:

- Mexican spotted owl
- reactions to human activity in nesting areas
- desert bighorn sheep reactions to human activity in key habitat
- a relationship between visitor river use and Virgin spinedace and aquatic invertebrates
- a relationship between visitor river use and water quality
- Peregrine falcon roosting and nesting activities in relation to rock climbing
- mountain lion behavior/activity in visitor use areas
- quality of visitor experience relative to natural and human-generated sound levels
- the tolerance of Zion snails and hanging garden plants to human activity

STRATEGIES FOR THE LEVELS AND TYPES OF PARK DEVELOPMENT

All of the strategies described under "Park Policies and Practices" regarding development in the park will apply. The National Park Service will build the management facilities called for in the 1994 *Development Concept Plan, Zion Canyon Headquarters* (NPS 1994b). The Park Service will pursue several additional strategies regarding new development in the park. These strategies are intended to minimize new developments within the park and encourage the construction of visitor facilities outside the park.

- No new camping facilities will be built in Zion's frontcountry areas, including campgrounds, campsites, or infrastructure (e.g., roads, utilities, tables, fire rings). This includes areas in Zion Canyon, along the Kolob Canyons and Kolob-Terrace Roads, Lava Point, and along the Zion-Mt. Carmel Highway. In addition, picnic areas will not be converted into campgrounds.
- New picnic sites may be built but only in previously disturbed areas at selected trailheads or pullouts throughout the park and at the Kolob Canyons visitor center.
- No new food service buildings will be constructed in the park.
- No new lodging will be provided.
- No new roads will be built in the park, except possibly for short access roads to park facilities. The National Park Service will continue to coordinate and cooperate with the county with regard to maintenance of the Kolob-Terrace Road.
- Park workers will continue to staff collection stations and collect associated entrance fees on the south and east boundaries of the park (along the Zion-Mt. Carmel Highway), and at Kolob Canyons. In addition, the National Park Service will study the feasibility and advantages of establishing an entrance/fee collection station along the Kolob-Terrace Road.
- The Park Service will work with adjacent landowners, Kane County, and other organizations to locate a space outside the east boundary of the park to provide information to visitors.

ZION CANYON LODGE STRATEGIES

Park managers will continue to work with the concessioner to ensure that the quality of the services appropriate to the historic experience was maintained. The commercial services implementation plan will provide more detailed guidance on operation and administration of the lodge, and thus ensure that management of the lodge was consistent with desired conditions for this area (see also the "Visitor Use Strategies").

DESIRED CONDITIONS AND STRATEGIES FOR THE MANAGEMENT OF THE NORTH FORK OF THE VIRGIN RIVER

Restoring parts of the river will be an important step in preserving the dynamic processes that formed Zion Canyon and will maintain and restore habitat for riverine and floodplain species.

- Desired Conditions: The North Fork continues to provide high-quality experiences for visitors. Visitor use levels and activities are consistent with park purposes — visitors enjoy the river without impairing resources. Conflicts between users are minimal. The river's water quality and natural biological community are enhanced or maintained. Portions of the channel of the North Fork, particularly in the vicinity of Zion Lodge, are restored to a more natural morphologic condition, considering such factors as width/depth ratios, gradients, riffle and pool structure, sinuosity, and hydrologic connection with its floodplain. Floodplain habitat conditions are also restored through additional measures, including management of exotic plants and wildlife, protection and planting of native flora, and education of visitors.

- Strategies: The National Park Service will develop a river management plan(s) to address important water resource issues in the park, including visitor uses and the restoration of sections of the North Fork's floodplain. Actions will be consistent with management zoning and with the recommended classification of the river below the Temple of Sinawava

as recreational under the Wild and Scenic Rivers Act.

The river management plan will examine different strategies and actions for managing river uses (e.g., use levels, timing of use, educational efforts) to protect riparian and riverine resources and ensure continued visitor enjoyment of the river. Actions considered as part of this plan may include designating river access points, allowing river recreation only at times when the potential for resource damage or safety hazards was low, and limiting the number of visitors.

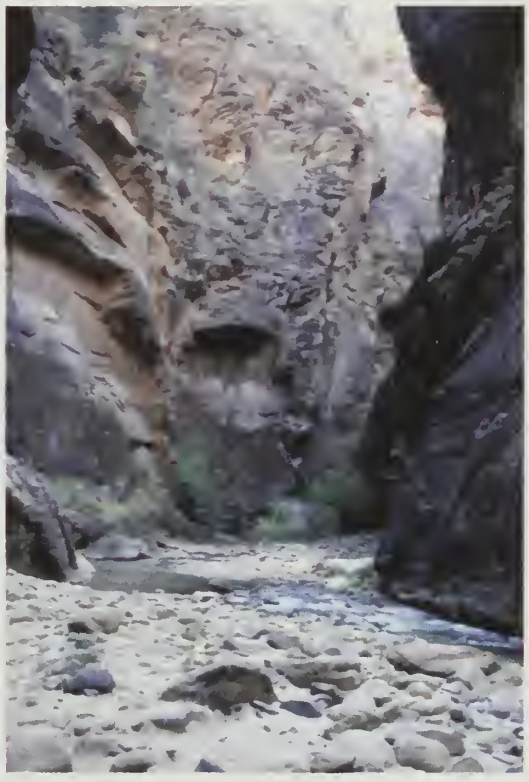
Restoring part of the North Fork may be addressed in the river management plan. This plan will

- identify objectives for any river restoration effort (e.g., the "natural" conditions that constitute a restored river, given its zoning and wild and scenic river status)
- indicate information needs (e.g., identification of the locations of all park infrastructure in or near the river floodplain, analysis of relocation and protection costs)
- identify and assess alternative approaches for restoring the river
- determine when, where, and how the river will be restored

The plan will examine the removal of levees and riverbank-protection structures (revetments) dating back to the 1920s that prevent the river from using the floodplain. These structures are primarily in place near the Zion Lodge. Park managers will evaluate alternative restoration approaches, ranging from allowing levees to slowly deteriorate over time to removing the levees, along with their effects on flood safety, floodplain resources, visitor use, and costs. Depending on the approach selected, the desired condition will be achieved in varying time spans.

Park managers also will evaluate other in-stream structures between the Temple of Sinawava and the southern park boundary, such as gabions, pipeline crossings, and cemented boulders, for their potential removal or replacement with more biologically, hydrologically, and aesthetically sensitive treatments. River diversion structures associated with the water rights of the National Park Service and Springdale will remain in place. The plan will need to include an examination of how restoration efforts can affect visitor access to the river and its floodplain and the potential impacts on the existing park infrastructure.

Visitor safety will be a primary consideration in planning any restoration of the North Fork. Since most park facilities are concentrated along the eastern edge of the floodplain, they can be protected while the river is allowed to use the remainder of the floodplain. In particular, the lodge and the Zion Canyon Scenic Drive will continue to be protected from flooding.



Zoning and Related Actions

The Zoning map shows how the different management zones will be applied throughout the park. The map shows the zones as both large polygons and as narrow corridors that follow trails, routes, and drainages. It should be noted that this zoning map shows how private inholdings and other lands with private water and mineral rights within Zion National Park will be managed if they are acquired in the future. Until the private rights (as shown on the Wilderness Recommendation and Land Status map) are acquired or relinquished, the National Park Service will recognize that the inholdings are private lands and respects the valid rights of the landowners and mineral and water right owners.

Pristine zones will cover most of Zion, about 81% of the park. Primitive areas will cover about 11% of the park, primarily in the Taylor Creek area, the area around Lava Point and Horse Pasture Plateau, the slopes of lower Zion Canyon, and the majority of trails in Zion's backcountry. Although most of the park's backcountry will be primitive or pristine zones where use levels will be low, much of the backcountry is not accessible to most visitors due to the park's steep topography. These zones will be consistent with most of the park being recommended as wilderness and with use levels the backcountry is likely to receive in the future.

About 6% of the park will be research natural areas, including Goose Creek, Parunuweap, upper Shunes Creek, Crazy Quilt, the slickrock area adjacent to Gifford Canyon, the southeast corner of the park, and several isolated mesa tops and hanging gardens.

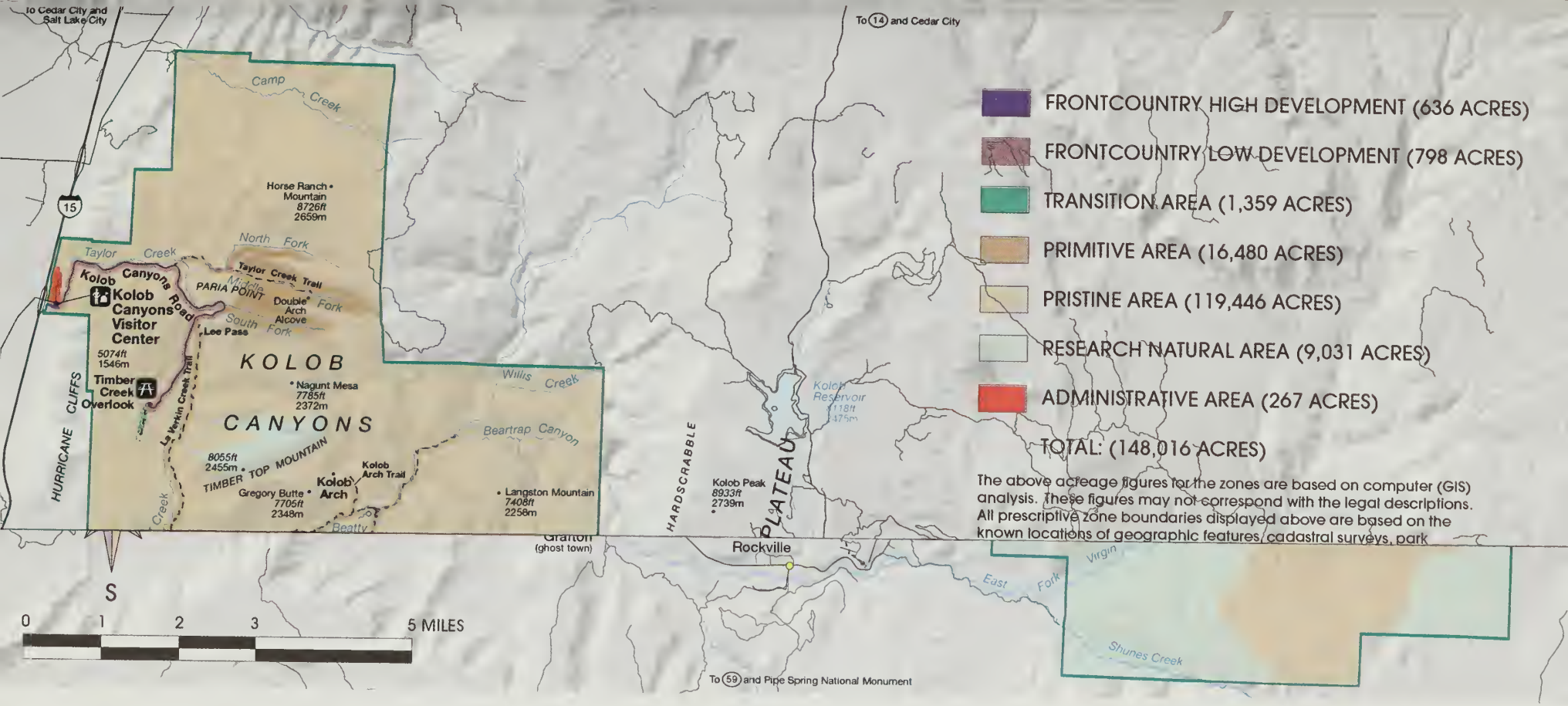
The transition, frontcountry, and administrative zones will be in readily accessible areas. Transition zones, covering about 1% of the park, will encompass the floor of Zion Canyon adjacent to the scenic drive, Sand Bench trail, the Weeping Rock trail, Canyon Overlook and Watchman trails, Emerald Pools trail, Court of the Patriarchs trail, the Hidden Canyon trail up to the mouth of the canyon, and the West Rim trail from the canyon floor up to Scout Lookout, and Angels Landing. The Narrows from Orderville Canyon south to Mystery Canyon, Timber Creek Overlook trail, and Observation Point trail will be designated as special transition zones (see the "Recommended Wilderness" section). Frontcountry high development zones, encompassing about 0.4% of the park, will include the south park entrance, the Zion Canyon Scenic Drive to the Temple of Sinawava, the Zion-Mt. Carmel Highway, and the entrance to the Kolob Canyons. About 0.5% of the park will be designated frontcountry low development zones, including the Kolob Canyons Road, Kolob-Terrace Road, Smith Mesa Road, Lava Point, and the east entrance. Administrative zones will comprise about 0.2% of the park, primarily in maintenance and employee housing areas and near the entrances to the Kolob Canyons and Lava Point.

The pristine, primitive, and research natural area zones will primarily lie within the recommended wilderness area. However, several of these zones, totaling 8,203 acres (about 5% of the park), will lie outside the recommended and potential wilderness areas. These areas include the area south of the powerline corridor in the Coalpits area; an area above Lava Point, north of the roads to the MIA camp; an area west of the Kolob-Terrace Road by the Smith Mesa Road; and several areas near the Kolob Canyons, Kolob-Terrace, and Zion-Mt. Carmel Roads. These pristine, primitive, and research natural areas will be managed the same way as the zones are managed in the recommended wilderness area.

The remainder of this section describes more specifically how different areas of the park will be zoned and the actions that can occur. The actions are those most likely to take place over the next 20 years in the park, given the zone definitions, what already exists in the park, and the park's environmental constraints. Where possible, any proposed new development will be built in already disturbed areas, and mitigation measures will be taken to avoid sensitive areas, such as threatened and endangered species habitat and archeological sites.

FRONTCOUNTRY AREAS

Kolob Canyons Road Area. The entrance area will be a frontcountry high development zone. Actions that may be taken in this area include expanding the existing Kolob Canyons visitor center, adding parking, and possibly developing



This zoning map shows how private inholdings and other lands with private water and mineral rights within Zion National Park would be managed if they are acquired in the future. Until the private rights (as shown on the Wilderness Recommendation (1978) and Land Status map) are acquired, the National Park Service recognizes that the inholdings are private lands, and it respects the valid rights of the landowners and mineral and water right owners.

Zoning

Zion National Park, Utah

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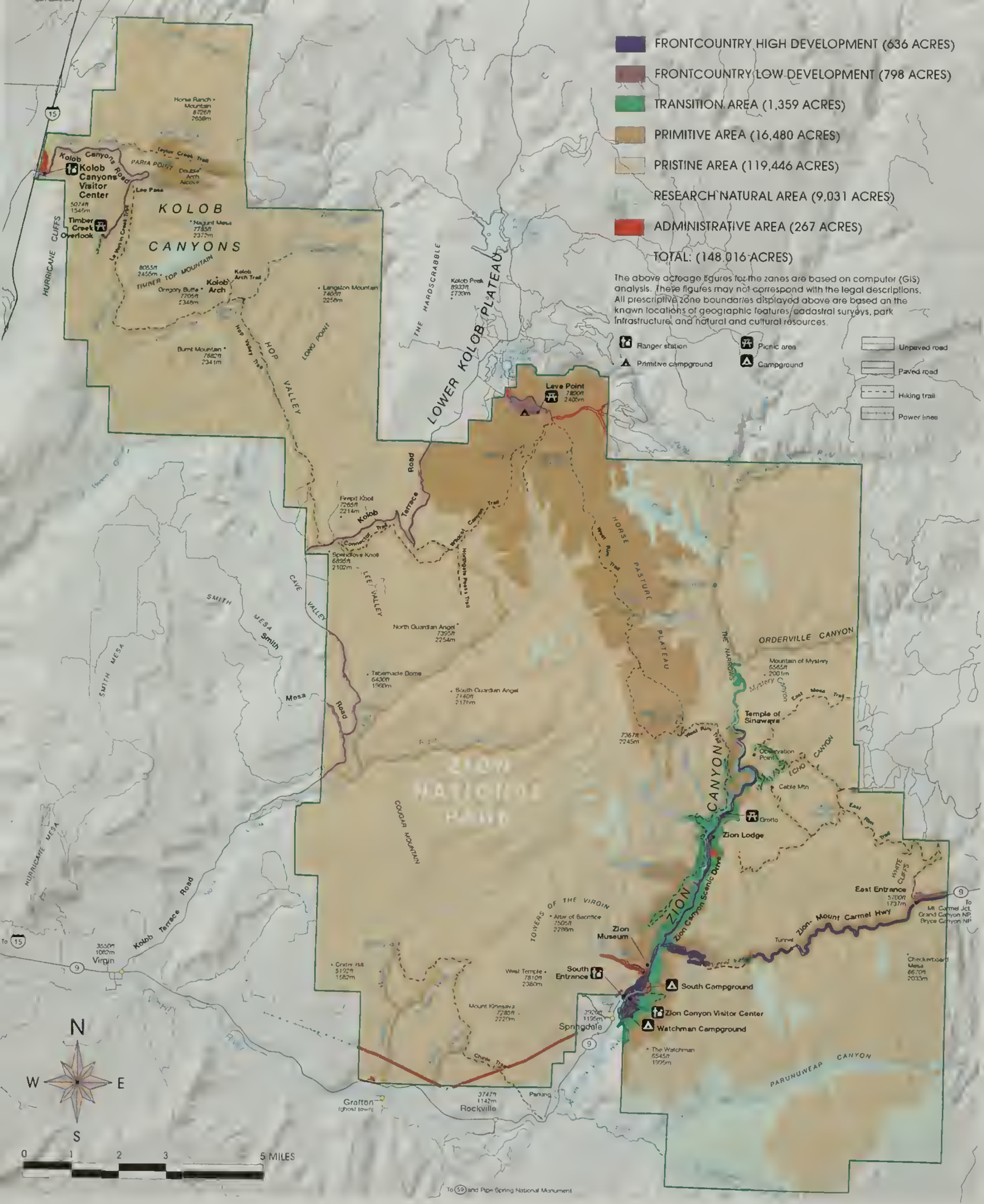

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Zoning

Zion National Park, Utah

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an outdoor exhibit area/plaza, an associated picnic area, and a nature trail.

The Kolob Canyons Road itself (the road corridor from the entrance gate to the Timber Creek Overlook) will be a frontcountry low development zone. If traffic in this area increases in the future, park staff will take action to ensure that the opportunity for visitors to have a rural experience was maintained, such as by limiting the number of private vehicles or offering a shuttle to transport visitors. No expansion of facilities will occur along the road other than the possibility of installing restrooms. Parking spaces at the trailheads for the Middle and South Forks of Taylor Creek and the Lee Pass trails will have to be reduced to reflect trail-use capacities. (These trails are all zoned primitive.)

The Timber Creek Overlook trail will be managed as a special transition zone because it lies within the recommended wilderness area. It will be maintained to meet wilderness requirements but will allow higher use levels than the majority of the recommended wilderness (see the "Recommended Wilderness" section).

The area to the north of the entrance, which includes employee housing, a maintenance shed, and water collection tanks, will be an administrative zone. This will allow managers to make improvements to support the possible increase in visitor services and facilities in this area. Particular actions that park managers can take in this area include adding administrative offices and/or maintenance facilities.

KOLOB-TERRACE ROAD AREA

The portion of the Kolob-Terrace Road corridor within the park will be a frontcountry low development zone. If visitor numbers increase here in the future, actions will be taken to ensure that a rural setting was maintained (e.g., offer a shuttle to transport visitors).

Within the limited space available, existing trailheads can be improved (e.g., restrooms installed), but no new trailheads will be built. The improvements may include adding a few picnic sites in the already disturbed areas at the Hop Valley and Wildcat Canyon trailheads.

With the agreement of the Bureau of Land Management (BLM), the Park Service will build a focused visitor facility/ranger residence/office and restrooms on BLM lands near the park boundary at North Creek. The staff at this facility will provide visitors with park information, visitors issue permits, possibly collect fees, and establish a Park Service presence on this side of the park. (Park managers will prepare a site plan and assessment of the environmental impacts of this facility at a later time.)

The existing Firepit Knoll administrative area and its associated access road will be a pristine zone. The ranger residence and road are not consistent with the desired conditions of the pristine zone. Thus, once the new focused visitor facility/ranger residence on the Kolob-Terrace Road was built, the Firepit Knoll ranger residence and its access road will be removed and the area restored to natural conditions.

Northeast of Virgin, the Park Service will remove the existing Dalton Wash/Crater Hill parking area. This area needs to be removed because it lies within the 1978 wilderness recommendation.

LAVA POINT AREA

Most of this area, which includes the Lava Point campground and picnic area, as well as the road to the West Rim trailhead, will be a frontcountry low development zone. If visitor numbers increase, actions will be taken to ensure that opportunities for visitors to have a rural experience are still available, such as by limiting the number of private vehicles or offering a shuttle to transport visitors.

The road east of the gate at the West Rim trailhead, including all three forks leading onto private land outside the park, will be an administrative zone. This zoning will allow continued motorized access by administrative vehicles, the private landowners, and their guests. The area to the north of the entrance also will be an administrative zone to support management of this part of the park. The existing Lava Point ranger residence will be replaced with a new structure that meets NPS standards.

SOUTH ENTRANCE AND THE MAIN ZION CANYON AREA

This area of the park will be a mix of frontcountry high development, primitive, pristine, transition, and administrative zones.

The areas zoned frontcountry high development will include the road corridor from the south entrance to the Temple of Sinawava, including much of the Zion Canyon Lodge area (parking lots, lodging facilities, and restrooms). Most of the south entrance area (including the campgrounds, the segment of the Pa'rus trail through the campgrounds, the Zion Canyon visitor center, and the Zion Museum) will be frontcountry high development zones. In these areas park staff may add picnic sites in disturbed areas.

Most of the canyon bottom on either side of the road corridor, including the segment of the North Fork of the Virgin River north of the campgrounds to the junction with Orderville Canyon, will be transition zones. Trails and routes that will be transition zones include:

- the segment of the Pa'rus trail extending north of the campgrounds
- the Watchman and Sand Bench trails
- the lower, middle, and upper Emerald Pools trails
- a segment of the West Rim trail from the canyon bottom to Scout Lookout
- the trail to Angels Landing
- part of the Hidden Canyon trail from the trailhead at the parking lot to the mouth of Hidden Canyon where the designated trail ends
- Weeping Rock trail
- the Observation Point trail from the trailhead at the Weeping Rock parking lot to Observation Point
- Riverside Walk
- the Narrows from the southern end of the Riverside Walk to the junction of Orderville Canyon

Bicycling and saddle stock use will not be permitted except for trails where the uses are currently allowed (i.e., bicycling on the Pa'rus trail, and horseback riding on the Sand Bench trail). The portion of the river zoned transition will need to be restored, as per the desired conditions/strategies discussed earlier, but the level of restoration can vary from simple to complex — the zoning will not require specific restoration actions. No other management actions will be necessary to ensure that these areas are consistent with transition zone conditions. Outside of wilderness, park staff can upgrade trails to higher standards to better meet zone conditions, however.

The Observation Point trail and the lower Narrows from Orderville Canyon south to Mystery Canyon will be managed as special transition zones since they lie within the recommended wilderness area. They will be maintained to meet wilderness requirements but will allow higher use levels than the majority of the recommended wilderness (see the "Recommended Wilderness" section).

Several areas will be administrative zones, including: Sammy's Canyon (site of the shuttle maintenance facilities), the Watchman employee housing area, the old waste treatment plant, the Oak Creek employee housing and maintenance area, the Pine Creek employee housing area, the Birch Creek concessioner support facilities, water collection structures at springs in Zion Canyon, and concessioner support facilities around the Zion Canyon Lodge. Any future development will be accomplished in a manner consistent with the zone descriptions.

Summary of Interim Visitor Use Limits

Visitor use limits pertaining to hikers will not be imposed in the frontcountry high and low development zones and the transition zone, unless resource or visitor safety conditions warrant action or carrying capacity studies determine there is a need to protect resources or visitor experiences. (For saddle stock interim use limits, see the text box on page 46.) The primitive, pristine, and research natural area zone conditions will limit the number of people who can enter these areas.

In the primitive zone, interim group sizes for day and overnight use will be 12 or fewer individuals. No more than 12 groups generally will be encountered per day in the zone.

In the pristine zone, the interim group size will be no more than 12 people. Visitors will usually not expect to encounter other groups in the zone.

In the research natural area zone, the interim group size for authorized research and guided educational group sizes will be limited to no more than 12 people, and recreational use will be prohibited.

EAST ENTRANCE AND THE ZION-MT. CARMEL HIGHWAY AREA

The road corridor and east entrance area will be frontcountry high development zones. No new trails or visitor facilities will be provided along the road corridor, with the possible exception of a few restrooms, picnic sites, and associated parking spaces in disturbed areas at existing pulloffs along the road. Pulloffs along the road that are contributing to unacceptable resource damage will be removed and rehabilitated. In addition, depending on the recommendations of the carrying capacity studies and transportation plan, a voluntary shuttle system may be initiated to better transport visitors to this area and reduce parking congestion.

The short access road to the East Rim trailhead and an area north of the east entrance will be frontcountry low development zones. The trailhead can be improved by formalizing parking and adding picnic sites and a restroom.

The Canyon Overlook trail will be a transition zone. Park staff will continue to prohibit bicycling and horses on this trail due to safety concerns. Actions that can be taken in this area include adding more interpretive signs along the trail and improving the parking area to address safety concerns.

Just outside the recommended wilderness, on the park's eastern boundary, the East Rim trailhead will be a frontcountry low development zone to provide for trailhead parking.

The existing employee housing area and water collection tank at the east entrance will be an administrative zone.

RECOMMENDED WILDERNESS

The park staff will continue to manage a total of 132,615 acres (about 90% of the park) as wilderness (see the Recommended Wilderness and Land Status map on page 47). This is consistent with the 1978 wilderness recommendation, with a few changes that reflect the acquisition of inholdings, state surface ownership and mineral rights, grazing rights, and water rights since that time. (The acreage figures also differs from the 1978 figures due to the inclusion of a valid existing water right on Camp Creek that had been overlooked in 1978, and due to the use of more accurate geographic information system maps.) In recognition of valid private rights, an additional 4,175 acres (3% of the park) will continue to be administered as potential wilderness — lands that currently do not qualify for wilderness designation due to nonconforming or incompatible uses (e.g., private inholdings, private water rights). If and when these rights are relinquished or acquired, the potential wilderness will either become part of the wilderness recommendation or be included as designated wilderness.

Recommended wilderness will primarily be zoned as pristine, primitive, or research natural areas.

PRIMITIVE ZONES

The primitive zone will apply to 13,602 acres in the recommended wilderness, including numerous trails and routes. (An additional 18 acres of potential wilderness will be included in this zone.) To meet desired zone conditions, on occasion managers may need to limit or reduce visitor numbers on the Narrows route from the northern park boundary to the junction with Orderville Canyon, Orderville Canyon itself, the Middle Fork of Taylor Creek, and La Verkin Creek trail. In the future, managers may need to place limits on visitor use elsewhere in the primitive zones if visitor use levels increased to the point where desired conditions are not being met.

Visitor access may be improved in a few areas within the primitive zones. Visitor access may also be improved in areas that are able to withstand increased human use (e.g., areas where there are no spotted owls or other sensitive species habitat). The topography of the areas adjacent to Lava Point and Wildcat Canyon, and on the Horse Pasture Plateau would be most conducive to improved access by the upgrading of existing trails and routes in these areas. Designated campsites in areas outside spotted owl protected activity centers can also be established. On the other hand, no new trails will be established along either side of the Zion-Mt. Carmel Highway due to the sensitivity of the resources in this area.

PRISTINE ZONES

The Park Service will apply the pristine zone to 110,083 acres in the recommended wilderness, which will include a number of known routes. (An additional 4,023 acres of potential wilderness will be included in this zone.) In general, existing conditions already meet the undeveloped, very low use nature of this zone. However, to ensure the probability of encountering no other people, managers may need to limit or reduce visitor numbers on sections of the following routes: Camp Creek, Willis Creek, Beartrap Canyon, Right Fork of North Creek, upper Coalpits Wash above the junction with the Chinlee Trail, Dalton Wash, upper Hidden Canyon, and Mystery Canyon. In the future,

managers may need to place limits on visitor use elsewhere in the pristine zones if visitor use levels increase to the point where desired conditions are not being met.

There may be areas zoned pristine that do not meet desired conditions. In such cases, park managers will remove the evidence of human use and restore these areas to natural conditions when feasible. Bolts on climbing routes and either national register-eligible or listed resources, including historic structures, will remain. These areas will be restored either by letting the areas naturally recover or by taking active measures such as planting native vegetation.

TRANSITION ZONES

Ordinarily, transition zones are not compatible with recommended wilderness. However, three areas within the 1978 recommended wilderness area all receive higher use levels than other trails in the recommended wilderness: the Timber Creek Overlook trail, the Observation Point trail, and the Narrows from Mystery Canyon to the mouth of Orderville Canyon. In recognition of their higher use levels, these three areas will be designated as special transition zones: the areas will be managed consistently with wilderness, but use levels will be permitted to be higher than in other zones in the recommended wilderness area.

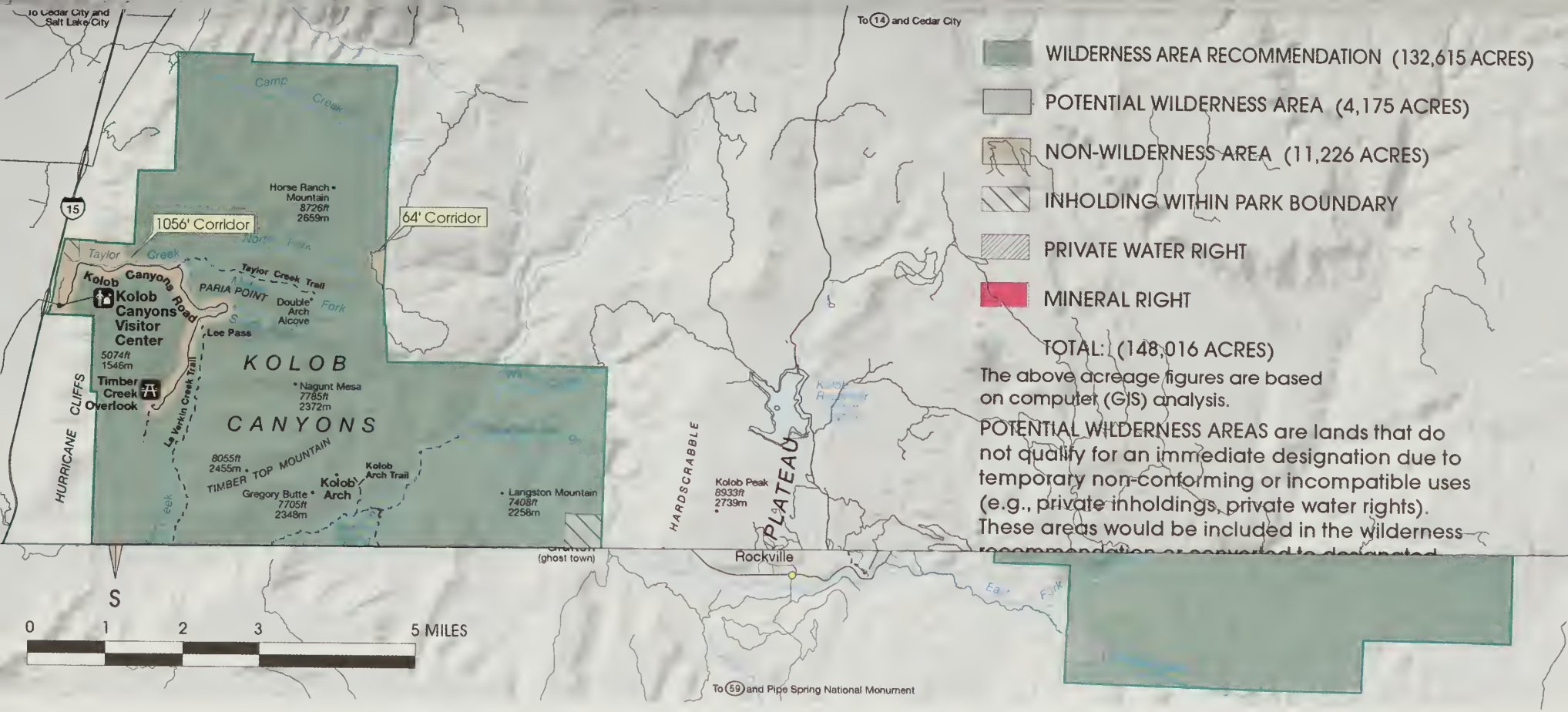
RESEARCH NATURAL AREAS

Research natural areas are integral to management and long-term monitoring of park resources. They serve as baseline reference areas to compare and assess the condition of more intensively used areas of the park. In addition, research natural areas protect significant examples of natural and cultural resources from impacts of recreational use and provide opportunities for long- and short-term research within areas mostly unaffected by human activities. As such, research natural areas serve as important sources of information for broader management decisions affecting park resources and visitor use.

This plan will change the research natural areas in Zion. Specifically, the three existing research natural areas will be deauthorized, and new research areas will be designated. The three original areas were poorly documented at the time they were established and do not specify the primary ecological components or processes to be studied and protected. Additionally, their boundaries were rather subjective and were poorly defined ecologically or administratively, making their management difficult. As a result, these research natural areas have mostly been ignored in park management since their designation. In some areas this resulted in uses that were inconsistent with their research natural area designations.

Summary of Saddle Stock Use Management

- Saddle stock are limited to horses, mules, and burros.
- All Zion Canyon trails from the rim down (with the exception of the Sandbench trail), Kolob Arch trail, Willis and Beartrap Canyons, the East Mesa trail below the junction with the Observation Point trail, the Taylor Creek trail, and Timber Creek Overlook trail will continue to be closed to all saddle stock.
- Saddle stock use on authorized backcountry trails in the primitive zone will continue to be prohibited during spring thaws, during unusually wet periods, and at other times when their use will cause undue trail damage.
- Off-trail use of saddle stock in the primitive zone will continue to be permitted only in the lower Coalpits Wash from the trailhead to the junction with Scoggins Wash, Scoggins Wash, and Huber Wash.
- In the primitive zone there will be an interim limit on group size: a maximum of six saddle stock and six people will be permitted per group.
- In the primitive zone there will be an interim encounter rate limit: no more than one other stock group can be encountered per day.
- In the primitive zone, overnight camping with saddle stock will be permitted only at one designated campsite in Hop Valley. A group will be permitted to stay at this campsite only one night.
- In the pristine zone no saddle stock will be allowed in order to avoid impacts to sensitive natural and cultural resources and other visitors.



This map is based on the 1978 recommendation that was submitted to Congress. The map includes changes that have been made since that time due to the acquisition of inholdings, state surface ownership and mineral rights, grazing rights, and water rights, and the inclusion of a valid existing water right on Camp Creek that was overlooked in 1978. All inholdings and lands with existing private water rights are shown as potential wilderness areas. Until the inholdings and lands with private rights are acquired, the National Park Service recognizes and respects the rights of the owners. Private vehicle access to the inholdings on existing roads would continue until such time as the inholdings and associated roads are acquired.

Road/trail corridors displayed on this map are intended to differentiate recommended, potential and non-wilderness areas. They may or may not correspond to the legal rights-of-way.

Recommended Wilderness and Land Status

Zion National Park, Utah

United States Department of the Interior • National Park Service

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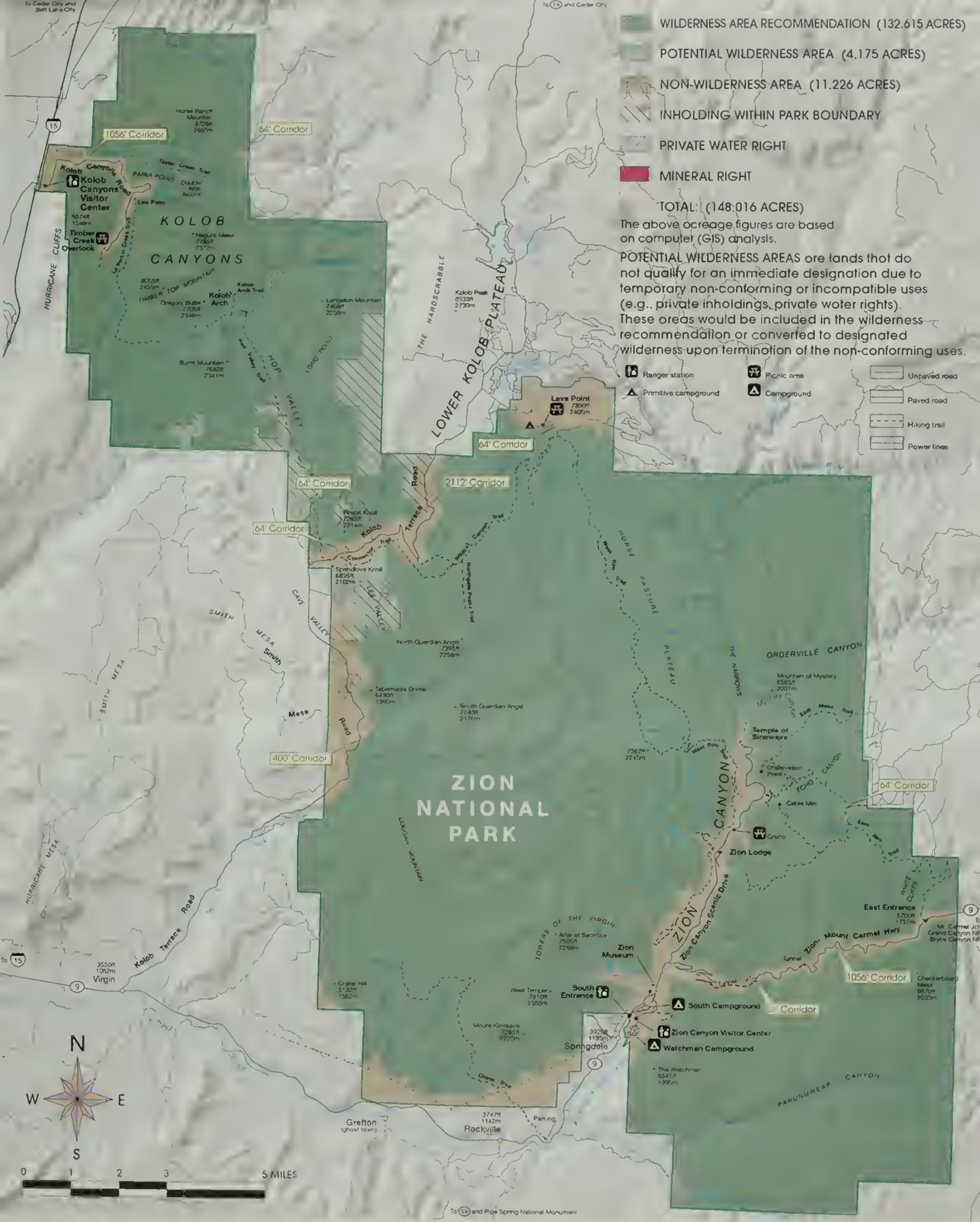

This map is based on the 1978 recommendation that was submitted to Congress. The map includes changes that have been made since that time due to the acquisition of inholdings, state surface ownership and mineral rights, grazing rights, and water rights, and the inclusion of a valid existing water right on Camp Creek that was overlooked in 1978. All inholdings and lands with existing private water rights are shown as potential wilderness areas. Until the inholdings and lands with private rights are acquired, the National Park Service recognizes and respects the rights of the owners. Private vehicle access to the inholdings on existing roads would continue until such time as the inholdings and associated roads are acquired.

Road/trail corridors displayed on this map are intended to differentiate recommended, potential and non-wilderness areas. They may or may not correspond to the legal rights-of-way.

Recommended Wilderness and Land Status

Zion National Park, Utah

United States Department of the Interior • National Park Service

DSC • August 2000 • 116 • 20027o

Because well-managed and ecologically defined research natural areas are essential to achieve the purposes of Zion National Park, new research natural areas will be designated. (See the text box below for an explanation of how these areas were selected.) Several of the proposed research natural areas are more ecologically specific areas derived from the three existing research natural areas that will be deauthorized. The new areas also are more suitable and possess a greater variety of ecological communities than the currently designated research natural areas. These are areas that park staff can manage more consistently with the intent of the research natural area national network.

The research natural area zone will be applied to the new research natural areas. The zone will cover 9,013 acres, which will make up about 6% of the park. Most of the research natural areas (8,893 acres) will be in the recommended wilderness; another 134 acres of potential wilderness will be included in this zone. The research natural areas will include undisturbed watersheds and riparian corridors (Parunuweap, Goose Creek, upper Shunes Creek), some isolated mesa tops (e.g., Burnt Mountain, Greatheart Mesa, Inclined Temple, Crazy Quilt), selected hanging gardens in Zion and Parunuweap Canyons (e.g., near Grotto Spring, Weeping Rock, and North Menu Falls), a representative area of slick rock between the Zion-Mt. Carmel Highway and Parunuweap Canyon, and a relict piñon-juniper forest in the southeast corner of the park. (See appendix D for a list of all of the research natural areas that will be designated along with a description of the attributes of these areas.)

The research natural areas will be open only to authorized research and NPS-guided educational trips — recreational use will be prohibited. Actions park managers may take in this zone include:

- providing offsite interpretation on the values of these areas
- allowing minimal trail and campsite construction if essential to provide access to temporary research equipment (e.g., access to a temporary water gauging station)
- installing temporary research equipment if no practical alternative exists for achieving research goals and where consistent with the Wilderness Act

Selection of New Research Natural Areas

To select areas to be designated as research natural areas, the process described in the NPS "Natural Resources Management Guideline" (NPS 1990) was followed, incorporating resource data from the park geographic information system and other databases and from information provided by interested scientists and the public. The new research natural areas were selected to represent and include important physical processes, biological species and communities, and cultural resources within landscapes of applicable size to allow them to be affected primarily by natural forces. Therefore the new research natural areas range in size from less than an acre in the case of protecting a hanging garden vegetation community to more than 4,000 acres to study the hydrologic and geologic processes at work in a slickrock watershed. Landscape units were selected that contain outstanding examples of several ecological units and multiple resource attributes.

Boundary Adjustments and Easements

The National Park Service will propose several boundary adjustments and the acquisition of access and conservation easements in Zion. Congressional authorization will be required for the National Park Service to pursue the boundary adjustments and to acquire easements on private lands.

Under section 604(b)(4) of the National Parks and Recreation Act (PL 95-625), Congress specifically directed the National Park Service to identify proposed boundary adjustments in park general management plans. The Park Service will propose boundary adjustments for Zion National Park through land transfers from the Bureau of Land Management. The map on page 51 shows the general locations of these boundary adjustments. All of the proposed boundary changes satisfy the NPS criteria for boundary adjustments. (The evaluation of the boundary proposals and easements is on file at park headquarters.)

The proposed boundary adjustments also must meet the requirements of Public Law 101-628. Section 1216 requires an evaluation of each proposed addition, including an assessment of the impact of the boundary adjustment. Section 1217 requires the National Park Service to consult with others on the proposal, to estimate the cost of acquisition, and to identify the relative priority for acquisition of each parcel. This plan does not address these legislative requirements; however, the legislative proposal and accompanying support materials that are submitted to Congress will address these requirements.

BLM LAND TRANSFERS

The National Park Service will propose four BLM wilderness study areas adjacent to Zion, totaling 640 acres, to be included in the park boundary (see the Proposed Park Boundary Adjustments and Adjacent Landownership map). These areas include: Watchman (480 acres); Middle Fork of Taylor Creek (40 acres); Beartrap Canyon (40 acres); and the southern part of the Goose Creek area (80 acres).

These parcels are small, isolated areas managed by the Bureau of Land Management. The boundary changes will bring into the park the heads of canyons or incorporate complete drainages and other prominent features that visitors already associate with Zion. The changes also will enable park staff to manage all of the subject canyons, provide increased protection for other natural and cultural resources in the park (e.g., Mexican spotted owl habitat), provide visitors with additional challenging hiking opportunities, and promote more efficient management of the areas. These land transfers are consistent with the recommendations in the *Dixie Resource Area Resource Management Plan* (BLM 1998).

It is the intention of the National Park Service to administer and protect the proposed BLM wilderness study area acquisitions in keeping with *NPS Management Policies* and *Director's Order 41* (Wilderness Preservation and Management). In keeping with established guidelines, the National Park Service will subsequently initiate the administrative process needed to recommend to Congress the addition of these units to the national wilderness preservation system as either NPS "designated" or "potential" wilderness.

In addition to these areas, the Park Service proposes approximately 311 acres on the adjacent Rockville Bench for transfer to the park. The boundary adjustment will preserve the park's scenic qualities, eliminate or mitigate impacts on its natural and cultural resources, and promote more efficient management of the park. Thus, the proposal will satisfy the NPS criteria for boundary adjustments. Both the Bureau of Land Management and the town of Rockville are amenable to this land transfer. The Park Service and Bureau of Land Management will enter into an interim memorandum of agreement for the Park Service to manage the tract until the proposed boundary adjustment is approved.

ACQUISITION OF ACCESS EASEMENTS

An easement is an interest in property restricting certain uses of land or giving a right to another entity to make limited use of the land. An access easement gives the public a right to pass through a property owner's land. All current and future owners of the land are legally bound to follow the provisions of the easement agreement.

Legend

- NATIONAL PARK SERVICE
- BUREAU OF LAND MANAGEMENT
- US FOREST SERVICE
- PRIVATE
- STATE
- PROPOSED BOUNDARY ADJUSTMENT
- BLM WILDERNESS STUDY AREA (WSA)

Proposed Acquisition of Access Easements

1. North Fork Virgin River
2. Orderville Canyon
3. Ponderosa Ranch
4. Anasazi Plateau
5. Camp Creek
6. Horse Ranch Mountain

Proposed Acquisition of Conservation Easements

A. Kolob Terrace Area
B. Anasazi Plateau
C. North Fork Virgin River

Proposed Park Boundary and Adjacent Landowner

Zion National Park, Utah

United States Department of the Interior • National Pa
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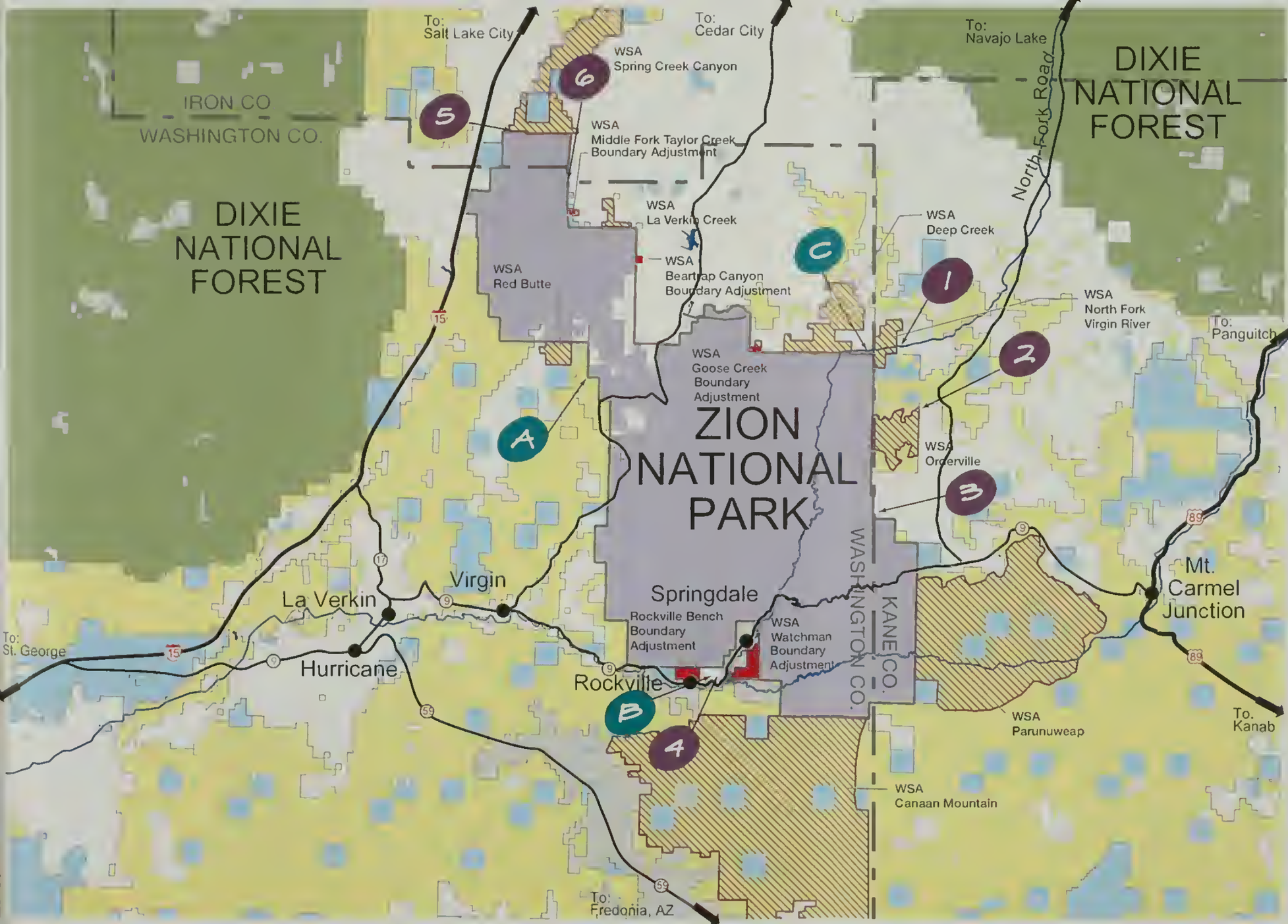

Legend

- NATIONAL PARK SERVICE
- BUREAU OF LAND MANAGEMENT
- US FOREST SERVICE
- PRIVATE
- STATE
- PROPOSED BOUNDARY ADJUSTMENT
- BLM WILDERNESS STUDY AREA (WSA)

Proposed Acquisition of Access Easements

1. North Fork Virgin River
2. Orderville Canyon
3. Ponderosa Ranch
4. Anasazi Plateau
5. Camp Creek
6. Horse Ranch Mountain

Proposed Acquisition of Conservation Easements

- A Kolob Terrace Area
- B Anasazi Plateau
- C North Fork Virgin River

N W E S

0 3 5 Miles

Proposed Park Boundary Adjustments and Adjacent Landownership

Zion National Park, Utah

United States Department of the Interior • National Park Service

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The National Park Service will seek nine access easements, totaling approximately 15 miles, on lands outside the park boundary (see the Proposed Park Boundary Adjustments and Adjacent Landownership map on page 51). The easements include:

- the North Fork of the Virgin River/Virgin River Narrows (3 miles)
- Orderville Canyon (0.25 mile)
- Ponderosa Ranch area (two separate easements, totaling 3 miles)
- Anasazi Plateau (1.3 miles)
- Camp Creek (1 mile)
- Horse Ranch Mountain area (three separate easements totaling 6.5 miles)

The Park Service believes the easements will ensure that visitors and park personnel continue to have access in perpetuity to relatively inaccessible parts of the park. Several of the easements provide access to existing trailheads and popular routes. Without these easements, visitor access can be severely restricted and park managers will not be able to adequately protect and preserve park resources or complete resource management projects and studies in remote parts of the park.

ACQUISITION OF CONSERVATION EASEMENTS ON ADJACENT PRIVATE LANDS

Private lands abut Zion's boundary in many locations. Most of these areas are undeveloped, but several landowners are developing or are considering developments on their property. Developments or other uses on these parcels can adversely affect the scenic qualities of the park and visitor experiences. Three privately owned adjacent areas are of particular concern:

- the Kolob Terrace area south of Spendlove Knoll (1,500 acres)
- the Anasazi Plateau subdivision area east of the Rockville Bench (400 acres)
- parcels in the North Fork of the Virgin River near the northeast corner of the park (320 acres)

The National Park Service will seek legislative authority to acquire conservation easements for these areas and for other potential areas near the park on a willing-seller basis, or will encourage local governmental entities or nonprofit groups to acquire these easements. These easements will benefit the landowners and will not remove any privately owned land from the tax rolls. In some cases, as with the Anasazi Plateau subdivision, the landowner is able to cluster new homes in the development and dedicate the remaining portion to an open space conservation agreement as provided for by Springdale's zoning ordinances.

Proposals for Wild, Scenic, and Recreational River Designation

As part of the planning process for Zion, a study was conducted to determine whether any of the rivers in the park and on six river segments on adjacent Bureau of Land Management lands should be recommended for inclusion in the national wild and scenic rivers system.

Appendix E summarizes the study process that was followed. (For more details on the study process, see the *Final Zion General Management Plan / Environmental Impact Statement* (NPS 2000). Based on the evaluation, the following five rivers and their tributaries in the park were found eligible and suitable for inclusion in the national wild and scenic rivers system:

- the North Fork of the Virgin River above and below the Temple of Sinawava (two segments)
- the East Fork of the Virgin River
- North Creek
- La Verkin Creek
- Taylor Creek

In addition all six BLM segments evaluated were found eligible and suitable, with the exception of the upstream 1.7-mile segment of Shunes Creek from the Kane County line to the dryfall. All of the above rivers and their tributaries will be proposed for wild, scenic, and recreational river designation.

Table 1 lists the proposed classifications for the rivers and their tributaries. (Tributaries are listed beneath the main stems.) See the Wild and Scenic Rivers map on page 55 for locations of the rivers and their tributaries.

The Zion National Park Water Rights Settlement Agreement provides comprehensive protection of Zion National Park rivers. The National Park Service will support wild and scenic rivers authorizing legislation that recognizes this Agreement as constituting the reserved water rights for the park and that does not reserve more water for the park than is provided for in the Agreement. In this way the National Park Service can honor its commitments made in negotiating the Agreement.

Proposed Wild and Scenic Rivers

Zion National Park, Utah

United States Department of the Interior • National Park Service
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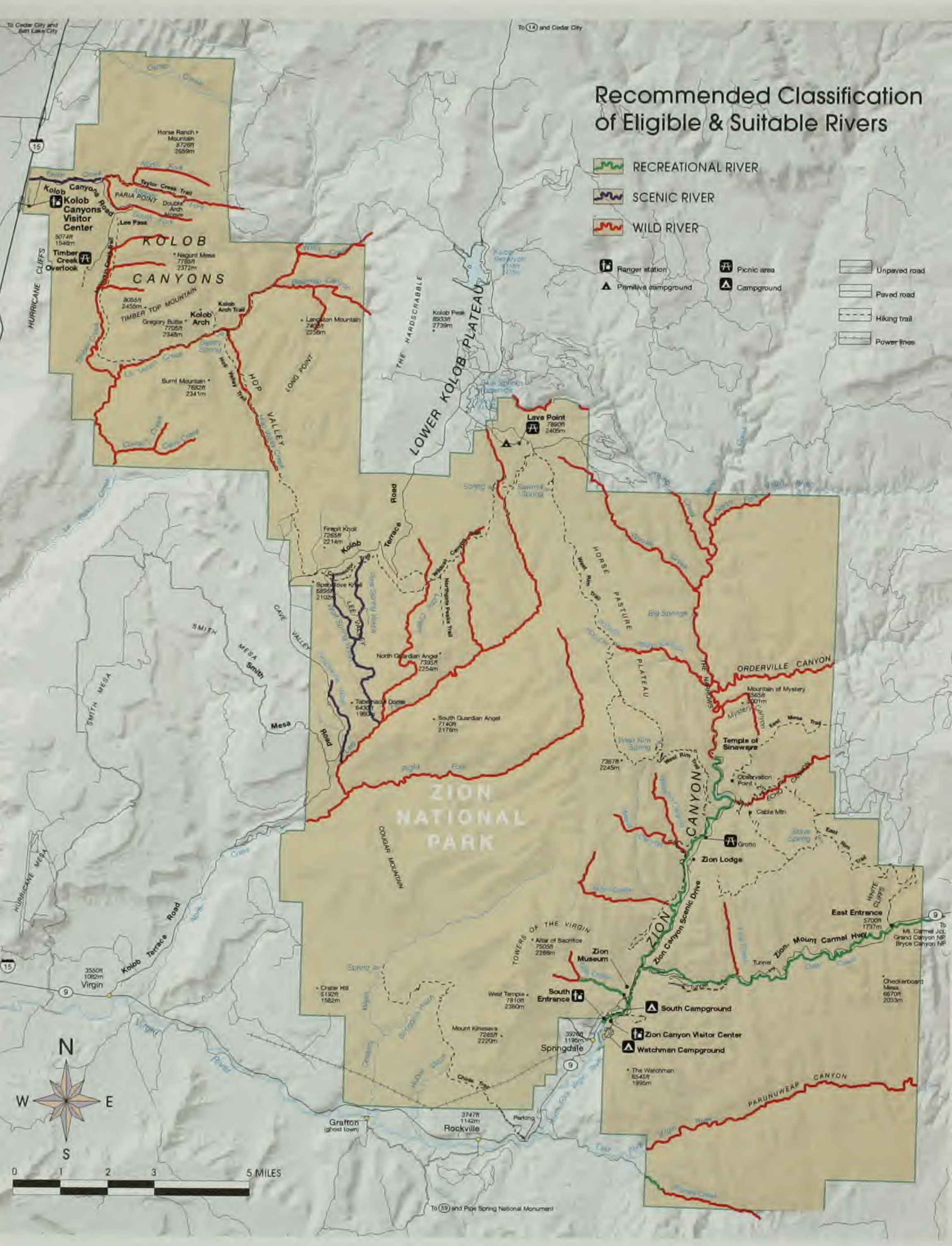

Proposed Wild and Scenic Rivers

Zion National Park, Utah

United States Department of the Interior • National Park Service

DSC•August 2000•116•20024a

Table 1: Proposed Classification of Rivers in Zion National Park and on Adjacent BLM Lands

River	Classification
North Fork of the Virgin River, Above the Temple of Sinawava	Wild
•Kolob Creek (incl. BLM segment)	Wild
•Goose Creek (incl. BLM segment)	Wild
•Imlay Creek	Wild
•Orderville Canyon	Wild
•Deep Creek	Wild
•Mystery Canyon	Wild
North Fork of the Virgin River below the Temple of Sinawava	Recreational
•Birch Creek Canyon	Wild
•Pine Creek (excluding the segment segment below the lowest switch-back west of the tunnel on Zion-Mt. Carmel Highway	Wild
•Pine Creek (below the switch-back to confluence with the North Fork Virgin	Recreational
•Oak Creek (incl. BLM segment)	Recreational
•Heaps Canyon	Wild
•Behunin Canyon	Wild
•Echo Canyon	Wild
•Clear Creek	Recreational
East Fork of the Virgin River	Wild
•Shunes Creek (incl. BLM segment), excluding the segment from the water diversion to the western park boundary	Wild
•Shunes Creek from the western park boundary to the water diversion	Recreational

River	Classification
North Creek	Wild
•Wildcat Canyon	Wild
•Right Fork	Wild
•Left Fork	Wild
•Grapevine Wash	Scenic
•Wolf Springs Wash	Scenic
•Pine Spring Wash	Scenic
•Russell Gulch	Wild
•Little Creek	Wild
LaVerkin Creek	Wild
•Willis Creek (incl. BLM segment)	Wild
•Beartrap Canyon (incl. BLM segment)	Wild
•Currant Creek	Wild
•Cane Creek	Wild
•Timber Creek	Wild
•Hop Valley Creek	Wild
Taylor Creek	Wild
•North Fork	Wild
•Middle Fork from east of the park boundary along the Kolob Canyons Road for 1 mile	Scenic
•The rest of the Middle Fork (including the BLM segment) South Fork	Wild Wild

Implementation

PRIORITIES, COSTS, AND FUNDING

The National Park Service will implement new developments and management actions over the next 20 years as funding becomes available. The Park Service will establish partnerships with other agencies or groups to implement several actions. The park's management emphasis will shift under this plan, requiring a reallocation of staff among the different park programs.

Estimates regarding the general costs of implementing this plan are provided in the *Final General Management Plan / Environmental Impact Statement*. The actual cost of implementing the plan will ultimately depend on funding by the National Park Service and Congress over the life of the plan.

Given adequate funding, the highest priority will be given to implement actions that serve the following functions:

- address crucial resource protection needs
- address visitor and employee safety concerns
- remedy serious infrastructure concerns
- accommodate immediate interpretation or visitor use needs

FUTURE PLANNING AND RESEARCH NEEDS

Park managers will prepare several "step-down" implementation plans and studies upon completion of the *General Management Plan*. These more detailed implementation plans will describe how the Park Service will achieve the desired conditions outlined in the *General Management Plan* by describing specific actions park managers intend to take in Zion to ensure that resources are protected, and visitors continued to have opportunities for high quality experiences. The Park Service will seek public input in preparing all of these plans and will prepare additional environmental documentation as needed to comply with the National Environmental Policy Act.

The highest priority implementation plan will be the wilderness management plan. Carrying capacity studies also will be done for the front and backcountry. (For details on the carrying capacity studies, see page 36-38.) These studies and plan will be completed by 2006.

The wilderness management plan will address a variety of topics, either as plan components or stand-alone plans:

- carrying capacity: appropriate uses and use levels, including hikers and saddle stock use
- minimum requirement documentation: guidelines for the use of "minimum requirement" that apply to all administrative decisions within the recommended wilderness
- resource issues: other visitor and resource impacts, reservation systems, human waste, signs, resource monitoring, and fire management
- climbing/canyoneering: locations, use levels, and resource issues
- river management: strategies for managing water use in and from the park's recommended wilderness
- commercial guiding: whether or not commercial guiding should be allowed in the recommended wilderness, and if so how it should be managed

In addition to these follow-up actions specific to the park's recommended wilderness, there are other implementation plans that will be needed. These plans will include:

- river management: detailed strategies for managing the North Fork of the Virgin River
- water resources: parkwide water issues, including a water supply, treatment, and conservation study
- air tour management: protection of natural quiet and natural sounds
- soundscape management: preservation of the natural soundscapes and mitigation of intrusive noise from sources other than air tours
- commercial services: commercial services necessary and appropriate in the park's frontcountry
- transportation plan: assess the need for expanding the current shuttle system

Congressional authorization will be sought for preparing a related lands study in the next one to three years. The purpose of the study will be to identify key lands that are integral to maintaining ecological integrity and long- range conservation of critical natural and cultural resources. The study will encompass public

lands that may be considered for inclusion in the national park, as well as public and private lands, which may be managed cooperatively with willing parties under easements, agreements or other means. The study should also consider the availability of adjacent lands for accommodating increased recreational use, include an analysis of the local economic impact of alternatives for managing the Zion National Park ecosystem, and determine the ecological boundaries necessary to ensure integrity of park resources and natural processes.

Appendix A: Record of Decision

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
RECORD OF DECISION
FINAL ENVIRONMENTAL IMPACT STATEMENT
GENERAL MANAGEMENT PLAN

ZION NATIONAL PARK
UTAH

INTRODUCTION

The Department of the Interior, National Park Service (NPS), has prepared this Record of Decision (ROD) on the *Final General Management Plan / Environmental Impact Statement* for Zion National Park, Utah. This ROD includes a statement of the decision made, synopses of other alternatives considered, the basis for the decision, a description of the environmentally preferable alternative, a discussion of impairment of park resources or values, a listing of measures to minimize environmental harm, and an overview of public involvement in the decision-making process.

DECISION (SELECTED ACTION)

The National Park Service will implement the preferred alternative as described in the *Final General Management Plan / Environmental Impact Statement* issued in January 2001. Under the selected action, park managers will make several changes to proactively address impacts resulting from increased levels of visitor use in Zion National Park. The park will be zoned to ensure that resources are protected and opportunities are provided for a range of quality visitor experiences. Most of the park (90%) will continue to be recommended for wilderness designation and will be managed according to the provisions of the Wilderness Act. In the frontcountry no new major visitor facilities will be provided; however, small visitor facilities, such as picnic sites and restrooms, could be built in several areas, including the Kolob Canyons and the east entrance. Voluntary visitor shuttles may run along the Zion-Mt. Carmel Highway to the east entrance. The Zion Canyon Lodge will continue to operate as it has in the past. Part of the North Fork of the Virgin River in the main Zion Canyon will be restored to a more natural condition.

In the backcountry several management actions will be taken. Three existing research natural areas (21% of the park) will be deauthorized, while new research natural areas covering 6% of the park will be designated. Group size limits and new group encounter rates will be instituted as interim standards, pending the completion of a wilderness management plan. Park managers may need to limit or reduce visitor numbers on 12 trails and routes in the recommended wilderness, depending on visitor use levels, including part of the Narrows, Middle Fork of Taylor Creek, and La Verkin Creek. Only authorized research and NPS-guided educational groups will be allowed in 9,031 acres in mostly remote backcountry areas (including Parunuweap Canyon) due to their designation as research natural areas.

The selected action calls for the National Park Service to propose five Bureau of Land Management (BLM) areas, totaling approximately 950 acres, for transfer to the park. Nine access easements, totaling about 15 miles, and three conservation easements, totaling 2,220 acres, would be sought on private lands adjacent to the park. Congressional authorization would be required for all these actions.

Five streams and their tributaries in the park, and six tributaries on BLM lands adjacent to the park, will be recommended for inclusion in the national wild and scenic rivers system. The five streams in the park are: the North Fork of the Virgin River above and below the Temple of Sinawava, the East Fork of the Virgin River, North Creek, La Verkin Creek, and Taylor Creek. The tributaries extending from the park and partly on BLM lands are: Kolob Creek, Goose Creek, Shunes Creek, Willis Creek, Beartrap Canyon, and the Middle Fork of Taylor Creek. Congressional authorization will be required for inclusion of these streams and tributaries in the national wild and scenic rivers system.

OTHER ALTERNATIVES CONSIDERED

Three other alternatives for managing Zion National Park were evaluated in the *Draft and Final Environmental Impact Statements.*

The no-action alternative provides a baseline for evaluating the changes and impacts of the three action alternatives. Under the no-action alternative, park managers would continue to manage Zion as it has in the past, relying on the 1977 master plan and related existing plans. No new construction or major changes would take place, except for previously approved developments. All of the park's existing facilities would continue to be operated and maintained as they have in the past. The three existing research natural areas would be managed as they have been in the past. Most of the park (90%) would continue to be recommended for wilderness and be managed under the provisions of the Wilderness Act.

Alternative A would provide opportunities for more widespread and increased use of Zion, providing opportunities for a range of visitor experiences, while protecting resources. New management zones would be applied throughout the front and backcountry to proactively manage visitor use. The upgrading or building of trails and the designation of new routes would improve access inside the park. Additional visitor facilities, including picnic areas, information facilities, and backcountry campsites, would be provided at Lava Point, the Kolob Canyons area, the east entrance area, and along the Kolob-Terrace Road and Zion-Mt. Carmel Highway. The Zion Canyon Lodge would continue to operate as it has as in the past. Part of the North Fork of the Virgin River in the main Zion Canyon would be restored to a more natural condition. Most of the park (90%) would continue to be recommended for wilderness designation and be managed according to the provisions of the Wilderness Act. Group size limits and new encounter rates would be instituted as interim standards in the backcountry. Depending on visitor use levels, park managers may need to limit or reduce visitor numbers in four areas in the recommended wilderness. New research natural areas, covering about 4% of the park, would be designated, while the three existing research natural areas would be deauthorized. Only authorized research and NPS-guided educational groups would be allowed on 6,145 acres in remote backcountry areas due to their designation as research natural areas. However, under this alternative Parunuweap Canyon would be open to limited NPS or NPS-sanctioned guided interpretive trips along the river.

Alternative B focuses on providing increased protection for park resources while still providing opportunities for a range of visitor experiences. Management zones would be applied throughout the front and backcountry to proactively manage visitor use. In the frontcountry a full-service visitor facility would be built near the east entrance, and a mandatory shuttle system would be implemented along the Zion-Mt. Carmel Highway. Alternative B would limit other new development in the park to a minimum. In several areas trailheads would be removed and trailhead parking would be reduced. The Zion Canyon Lodge would be converted to a research/environmental education facility. Part of the North Fork of the Virgin River in the main Zion Canyon would be restored to a more natural condition. The number and frequency of shuttles going from the Zion Canyon Lodge to the Temple of Sinawava would be reduced. As in all of the alternatives, most of the park (about 90%) would continue to be recommended for wilderness designation and would be managed according to provisions of the Wilderness Act. Limits on group size and new limits on encounter rates would be instituted as interim standards in the backcountry. Depending on visitor use levels, park managers may need to limit or reduce visitor numbers on 17 trails and routes in the recommended wilderness. About 14% of the park (including Parunuweap Canyon) would be designated as research natural areas, while the three existing research natural areas would be deauthorized. Only authorized research and NPS-guided educational groups would be allowed on 20,348 acres in mostly remote backcountry areas due to their designation as research natural areas.

Alternatives A and B are identical to the selected action in the following ways: (1) the BLM areas that would be proposed for transfer to the park; (2) the acquisition of access and conservation easements; and (3) the streams in the park and on adjacent BLM lands recommended for inclusion in the national wild and scenic rivers system.

BASIS FOR DECISION

The Organic Act established the National Park Service in order to "promote and regulate the use of parks...." The Organic Act defined the purpose of the national parks as "to conserve the scenery and natural and historic objects and wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The Organic Act provides overall guidance for the management of Zion National Park.

In reaching its decision to select the preferred alternative, the National Park Service considered

the purposes for which Zion National Park was established, and other laws and policies that apply to lands in Zion National Park, including the Organic Act, the Wilderness Act, National Environmental Policy Act, existing formal agreements (e.g., the Zion National Park Water Rights Settlement Agreement), and the NPS Management Policies. The National Park Service also carefully considered public comments received during the planning process.

Each alternative in the *General Management Plan* presents a different framework for managing Zion National Park. As a result, each alternative would have different impacts on park resources and visitors.

Compared to all of the alternatives considered, the preferred alternative (selected action) best accomplishes protection of park resources and maintenance of a range of quality visitor experiences. The preferred alternative would have both positive and negative impacts on the park's natural resources, but most of the negative impacts would be minor and localized. The new management zones would help ensure that opportunities for experiencing solitude and natural quiet were available in most of the park, although the zones also may adversely affect some groups (e.g., saddle stock groups). Providing a few new small visitor facilities also would have minor, beneficial effects on visitor experiences.

Unlike the no-action alternative, the preferred alternative addresses many of the issues that have arisen since the master plan was approved in 1977, including management of the existing research natural areas, restoration of the North Fork of the Virgin River's floodplain, ensuring access to the park in several areas from adjacent lands, and protection of the park's scenic qualities along its boundaries. The preferred alternative provides a comprehensive approach for addressing impacts from increasing visitor use, particularly in the backcountry. In comparison, the no-action alternative does not fully address many of these issues or addresses them in a piecemeal fashion. As a result, the preferred alternative would have a lower potential than the no-action alternative for adverse impacts to such resources as Virgin spinedace habitat and desert bighorn sheep. Unlike the no-action alternative, restoring part of the North Fork of the Virgin River's floodplain would have beneficial effects on the river's values, riparian/wetland communities, and possibly southwestern willow flycatcher habitat. Also the preferred alternative would be expected to have a positive effect on most visitors' experiences, based on the application of the new management zones and the development of a few new visitor facilities. In contrast, the no-action alternative would likely result in a gradual decrease in the quality and range of recreational opportunities, increased crowding, declining condition of park resources, and diminished opportunities for quiet and solitude in areas not closely managed.

The preferred alternative would have a lower potential than alternative A for adverse impacts to natural resources in certain areas, such as the potential for impacts to the desert bighorn sheep range — there would be a greater potential in alternative A than in the preferred alternative for adverse impacts caused by increased visitor use within a large portion of the desert bighorn sheep range in canyons along the Zion-Mt. Carmel Highway. The preferred alternative also would have a lower potential than Alternative A for loss of microbiotic soils due to the amount of new development proposed and higher use levels. In addition, impacts to the natural soundscape would be lower under the preferred alternative than alternative A due to expected higher use levels in the former alternative.

Compared to alternative B, the preferred alternative would result in far fewer adverse impacts on visitor use and personal choice in much of the park. Unlike the preferred alternative, under alternative B there would be the potential for moderate to major adverse impacts to the experiences of many visitors. For example, there would be fewer opportunities in alternative B to experience Zion Canyon above the lodge, to stay overnight in the park, to ride horses, and to visit many parts of the backcountry.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Records of decision are required under Council on Environmental Quality regulations to identify the environmentally preferable alternative. Environmentally preferable is defined as "the alternative that will promote the national environmental policy as expressed in §101 of the National Environmental Policy Act. Section 101 states that "...it is the continuing responsibility of the Federal Government to...(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to heath or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diver-

sity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

The environmentally preferable alternative is the NPS preferred alternative in the *Final Zion National Park General Management Plan / Environmental Impact Statement* because it surpasses the other alternatives in realizing the full range of national environmental policy goals in section 101. This alternative provides a high level of protection of natural and cultural resources while concurrently providing for a wide range of neutral and beneficial uses of the environment. The alternative maintains an environment that supports a diversity and variety of individual choices. And it integrates resource protection with an appropriate range of visitor uses.

The no-action alternative does not provide as much resource protection as the preferred alternative — resource impacts would be expected to increase with increasing use levels, particularly in the backcountry. Visitor experience impacts also would likely increase under this alternative. Thus, compared to the preferred alternative, the no-action alternative does not meet as well national environmental policy goals 3 (attain the widest range of beneficial uses of the environment without degradation), 4 (preserve important natural aspects and maintain an environment that supports diversity and variety of individual choice), 5 (achieve a balance between population and resource use), and 6 (enhance the quality of renewable resources).

Alternative A provides for the greatest range of visitor experiences and access to Zion National Park. However, there would be a higher potential for impacts to natural resources under this alternative compared to the preferred alternative. Thus, alternative A does not meet policy goals 3 (attain the widest range of beneficial uses without degradation), 4 (preserve important natural aspects), and 6 (enhance the quality of renewable resources) to the same degree as the preferred alternative.

Although alternative B provides a higher level of resource protection than the preferred alternative, it restricts visitor experiences and thus does not fully achieve goals 3 (providing the widest range of beneficial uses of the environment without degradation) and 5 (achieving a balance between population and resource use) — alternative B does not realize these national environmental policy goals to the same extent as the preferred alternative.

FINDINGS ON IMPAIRMENT OF PARK RESOURCES AND VALUES

The National Park Service may not allow the impairment of park resources and values unless directly and specifically provided for by legislation or proclamation establishing the park. Impairment that is prohibited by the NPS Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. In determining whether an impairment would occur, park managers examine the duration, severity and magnitude of the impact; the resources and values affected; and direct, indirect, and cumulative effects of the action. According to NPS policy, "An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is: a) Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; b) Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or c) Identified as a goal in the park's general management plan or other relevant NPS planning documents."

This policy does not prohibit all impacts to park resources and values. The National Park Service has the discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impacts do not constitute an impairment. Moreover, an impact is less likely to constitute an impairment if it is an unavoidable result, which cannot be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

After analyzing the environmental impacts described in the *Final General Management Plan / Environmental Impact Statement* and public comments received, the National Pak Service has determined that implementation of the preferred alternative will not constitute an impairment to Zion National Park's resources and values. The actions comprising the preferred alternative are intended to protect and enhance the park's natural and cultural resources, and provide for high-quality visitor experiences. Overall, the alternative would have minor to moderate, beneficial effects on such resources as air quality, riparian/wetland communities, hanging gardens, and Virgin spinedace; major

beneficial effects on the floodplain of the North Fork of the Virgin River; and a minor, positive effect on most visitors' experiences. From an overall, parkwide perspective, no major adverse impacts to the park's resources or the range of visitor experiences and no irreversible commitments of resources (other than the loss of soil) would be expected. While the alternative would have some adverse effects on park resources and visitor experiences, most of these impacts would be site-specific, minor to moderate, short-term impacts. There is the potential for moderate to major impacts to microbiotic soils due to developments and use, but these impacts would occur in relatively small, localized areas. Most park lands supporting microbiotic soils would not be subject to disturbance.

Some pack stock users and hikers may be displaced by the application of the new management zones. However, other destinations in the park are available to these groups. None of the impacts of this alternative would adversely affect resources or values to a degree that would prevent the National Park Service from fulfilling the purposes of the park, threaten the natural integrity of the park, or eliminate opportunities for people to enjoy the park.

MEASURES TO MINIMIZE ENVIRONMENTAL HARM

Measures to avoid or minimize environmental harm that could result from implementation of the selected action have been identified and incorporated into the preferred alternative and are described in detail in the *Final General Management Plan / Environmental Impact Statement*. Natural resource mitigation measures are described in the "Park Policies and Practices" chapter, the description of the preferred alternative, and in the analysis of environmental impacts. Measures to minimize environmental harm include, but are not limited to: timing of trail openings/closures; restricting visitor activities at certain times and locations; siting projects and facilities in previously disturbed or developed locations; employing erosion control measures, restoration of habitats using native plant materials; visitor education programs, ranger patrols, erecting barriers and signs to reduce or prevent impacts; allowing only the use of weed-free materials and equipment in the park; conducting visitor surveys and monitoring visitor use patterns; monitoring changes in the condition of natural and cultural resources; monitoring construction activities; and consulting with the Utah state historical preservation officer and U.S. Fish and Wildlife Service when appropriate.

PUBLIC INVOLVEMENT

The National Park Service provided numerous opportunities for the public to participate in the Zion National Park general management planning process. The planning team primarily used newsletters and workbooks to solicit public comments and suggestions for the plan. During the course of the planning process six newsletters and one workbook were sent to the park's mailing list, which consisted of over 1,000 names. Each of the newsletters and the workbook provided the opportunity for feedback and comments from the public. The planning team held three focus group meetings to gain public input on aircraft overflights, river recreation, and climbing/canyoneering. Meetings were also held with the Springdale Planning Commission, Southwest Utah Planning Authorities Council, Five County Association of Governments, the Utah Natural Resource Coordinating Committee, and the Utah Rural Summit. In addition, members of the planning team consulted with and sought the views of several agencies and governments, including the Kaibab Paiute, Moapa, and Paiute Indian Tribes, U.S. Fish and Wildlife Service, Bureau of Land Management, and the Utah state historic preservation officer.

The comment period on the draft plan initially ran from December 6, 1999, through February 11, 2000. A notice of availability was published in the December 6, 1999, *Federal Register*. After several requests were received, the comment period was extended to February 29, 2000. The planning team held five public meetings on the draft environmental impact statement from January 6 through January 13, 2000. Meetings were held in Cedar City, Springdale, Kanab, St. George, and Salt Lake City. Over 500 separate written responses were received during the comment period.

One individual and one business sent in comments on the *Final General Management Plan / Environmental Impact Statement* during the 30-day no-action period. The business, UtahMountainBiking.com, opposed the addition of the Rockville Bench area to the park because this action would close the Slickrock Swamp Trail to mountain bikes. The individual was concerned that the city of Springdale did not comment sufficiently on several issues in the plan. No new substantive issues were raised in the two comment letters.

The notice of availability for the *Final Environmental Impact Statement* was published in the May 8, 2001 *Federal Register*. The 30-day "no action" period ended on June 7, 2001.

CONCLUSION

Among the alternatives considered, the preferred alternative best protects the diversity of park resources while also maintaining a range of quality visitor experiences, meets NPS purposes and goals for managing Zion National Park, and meets national environmental policy goals. The preferred alternative would not result in the impairment of park resources and would allow the National Park Service to conserve park resources and provide for their enjoyment by visitors. The officials responsible for implementing the selected alternative are the Regional Director, Intermountain Region, and the Superintendent, Zion National Park.

Approved:

Karen P. Wade
Regional Director, Intermountain Region, National Park Service

Date:

6/18/01

Appendix B: Statement of Findings for Floodplains

INTRODUCTION

Description of the Site. The North Fork of the Virgin River is the main drainage through Zion Canyon. A number of tributary streams feed into the North Fork within the canyon, including Birch Creek. Zion Canyon is the primary visitor use area within the park. Because of the physiographic characteristics of the canyon, a narrow valley confined by tall canyon walls, much of the existing use and development is located along the bottom of the main canyon or side streams.

Description of the Preferred Alternative. This statement of findings addresses the National Park Service proposal to retain the Zion Lodge and associated development, the support facilities at Birch Creek, existing picnic areas, as well as the addition of new picnic sites in Zion Canyon. Maintenance of other existing facilities within the canyon and proposed transportation system developments were covered under the statement of findings for the 1994 Development Concept Plan for Zion Headquarters and the subsequent 1997 Canyon Transportation System Environmental Assessment. The transportation system plan modified the elements of the earlier development concept plan and the statement of findings.

Flooding Characteristics in the Area. The North Fork experiences wide fluctuations in flow with a seasonal snowmelt peak in the spring, followed by generally low summer and fall flows. Occasional heavy storms, which can occur at any time of the year but are most common in summer and early fall, produce the largest flows in the Virgin River system. These runoff events are usually of short duration and can occur suddenly. Floods in desert regions such as Zion are often accompanied by large quantities of debris and sediment, increasing the impact of floods. The only reservoir with the capacity to significantly affect stream flows in the park is Kolob Reservoir, located 2.5 miles upstream of the park. Reservoir releases can make canyoneering in Kolob Creek hazardous, but are inconsequential farther downstream.

Through much of Zion Canyon, the 100- and 500-year floodplain boundaries closely follow the banks of the river. The probable maximum flood area extends into much of the valley floor, including Zion Lodge and all other facilities that are adjacent to the river. Estimates of flood stage indicate that the Zion Lodge and associated facilities (parking, restrooms, cabins, concessioner housing) would be protected by the existing road grade, which would contain both the 100- and 500-year floods. An exception to this is in the upstream reach adjacent to the main lodge building, where the 500-year flood would overtop the road and inundate a portion of the lawn area in front of the lodge. The flood depth would not reach the lodge foundation and overbank velocities would not likely exceed two feet per second. Even with failure of the road grade, neither of these design floods would reach the elevation of the lodge, since the foundation is estimated to be a minimum of three feet above the 100-year flood and one foot above the 500-year flood.

No floodplain mapping or flood stage estimates have been made for the support facilities (concessioner housing, water tank, and stable/corrals) on the Birch Creek point. Based on the topography and river channel characteristics in this area, these facilities are likely elevated outside of the 100- and 500-year floodplains, but would be within the probable maximum floodplain (December 6, 1993, trip report from Michael Martin, hydrological technician, NPS Water Resource Division).

JUSTIFICATION FOR USE OF THE FLOODPLAIN

Why the Proposal Would Retain Facilities in the Floodplain. The Zion lodge and Birch Creek facilities would be retained for their existing use and would remain within the probable maximum floodplain. The floodplain is closely bordered by canyon walls that slope upward at a sharp angle. Therefore there is little canyon bottom that is level enough for development that is outside of the floodplain and there are no other suitable non-floodplain sites on the narrow canyon bottom for relocation of these facilities. The overnight facilities in these two areas would be outside of the more frequently flooded sites as well as the 100- and 500-year floodplains. The park's warning and evacuation procedures would also remain in effect.

Under NPS procedures for implementing Executive Order 11988, the existing and proposed picnic areas may be placed within the 100-year floodplain, but these day use facilities must contain signs informing visitors of flood risk and suggested actions in the event of flooding. These facilities would be signed to warn visitors of flash flood hazards and evacuation areas.

Alternatives Considered in the Environmental Impact Statement. No alternatives were considered in the General Management Plan that would remove the Zion Lodge, Birch Creek development, or picnic areas. One alternative did consider converting the lodge to an environmental education center, although overnight use would still continue in support of this new function.

DESCRIPTION OF SITE-SPECIFIC FLOOD RISK AND ACTIONS TO MINIMIZE HARM TO FLOODPLAIN VALUES AND TO MINIMIZE RISK TO LIFE OR PROPERTY

The above facilities for visitors and employees, including overnight users, would be maintained in their existing locations within flood hazard areas along the North Fork and tributaries because flood prone areas are unavoidable within the confines of the canyon walls. These facilities could be lost during an extreme flood event, but are outside of areas potentially subject to more frequent flooding. To protect lives the evacuation plan and warning system would remain in effect. The flash flood warning and evacuation plan consists of daily contact between Zion dispatch and the National Weather Service during the summer to receive weather forecasts and storm potential conditions. Observations of drainage conditions by park rangers are also collected. The standard operating procedure is to close the upper canyon road to visitor traffic during flash floods, while posting rangers as scouts along the river to warn visitors and employees of impending danger. The park staff would also emphasize public education and awareness of flood hazards. Picnic facilities would be signed to warn of flash flood hazards and evacuation areas. These measures would minimize potentially hazardous conditions to people.

The natural and beneficial values of floodplains (moderation of floodwaters, maintenance of water quality, and groundwater recharge) would primarily not be affected by retaining the existing facilities. Minimal effects on ground water recharge would result from retention of impervious structures or paved surfaces.

SUMMARY

The National Park Service has determined that there is no practicable alternative to maintaining Zion Canyon Lodge, Birch Creek support facilities, and picnic areas within the probable maximum floodplain. This determination was based on the decision to maintain Zion Canyon as the primary visitor use area within the park, with provisions for overnight and day-use facilities. These facilities are not within areas subject to frequent flooding, and with the early warning system and evacuation plan in use, the risk to human safety would be minimized.

Recommended:

Superintendent, Zion National Park

Date: 03/07/01

Concurred:

Water Resources Division

Date: 3/30/2001

Concurred:

Regional Compliance Officer

Date: 5/7/01

Approved:

Karen P. Wade
Regional Director, Intermountain Region

Date: 5/9/01

Appendix C: Definitions of The Management Zones

FRONTCOUNTRY HIGH DEVELOPMENT ZONE
This zone will provide visitors with highly structured opportunities to enjoy and learn about the park by means of motorized, primary roads. In essence, visitors will feel as though they are in a pocket of civilization surrounded by the park's natural beauty. A wide array of visitor services and facilities will be available. The experience will be highly social. Both natural processes and the natural landscape will be highly modified.

Resource Conditions. Natural processes and the landscape will be greatly altered to accommodate visitors and support park operations. Throughout the area, resources may be altered or manipulated whenever necessary to restore damaged areas, preserve/ maintain cultural resources, or to direct visitor use and minimize human impacts. All alterations, however, should blend in with the surrounding landscape or facilities to the extent possible.

Visitor Experience. Visitors will view the park landscape from the relative comfort of motor vehicles and highly developed facilities. Transportation, lodging, camping, orientation/ information, and a wide variety of other services will be readily available to help visitors learn about and enjoy the park's resources. Visitors will feel secure in a developed environment. The visitor experience generally will be highly social with frequent interaction among visitors and between visitors and park staff. Although there may be some opportunity for solitude at certain times of the day, particularly during the off-peak season, encounters with others will be more likely compared to other management zones. Throughout the year, the only limits on numbers of people or on group size that may be encountered, both day and night, will be due to resource protection concerns or facility design capacities. Visitors will stay overnight in campgrounds or lodges. Because of the close proximity of facilities and services, visitors will not need to have a high degree of self-reliance or outdoor skills. Travel will occur mainly along primary or secondary roads or on walkways connecting facilities.

Management and Scientific Uses. Most management actions will focus on maintaining facilities and providing high quality visitor experiences, with a secondary focus on mitigating impacts from human use. Actions that may be taken to manage visitors include: directing or limiting use

via signs, fences, or pathways; educating visitors; and encouraging behaviors that protect resources and maintain visitor safety. Research and resource management activities also will be permitted, with some restrictions. Many types of equipment will be allowed for scientific and management purposes, although how, when, and where they will be used may be restricted. Fee collection will take place in this zone. For both research and administrative purposes, the number of people will be limited if there are resource protection concerns or by the design capacity of the facilities.

Appropriate Kinds of Activities and Development. Visitors can participate in a wide variety of highly structured and facility-dependent recreational activities. These activities will revolve mainly around going to a visitor center, enjoying motorized sightseeing, and camping in a developed campground or staying overnight in a lodge. Other activities may also include walking, bicycling on roads or designated trails, watching wildlife, and viewing selecting cultural sites. The use of nonmotorized watercraft (e.g., kayaks), climbing, and canyoneering will be permitted, although these activities may be restricted or prohibited at certain times and locations. Day use of saddle stock may be allowed in designated areas and at designated times. Nonmotorized winter activities will be permitted on trails and designated areas. Commercial filming may be permitted provided it is consistent with the desired resource and social conditions described above for the zone. Group activities (e.g., weddings, reunions) may occur with a special use permit.

A broad range of formal interpretive, education, and orientation programs, facilities, and information will be provided in this zone. Guided and self-guided activities may also be provided. For example, slide programs, guided walks and tours, live presentations, exhibits, publications, cooperating association sales (e.g., sales of park/resource-related interpretive materials), and some nature trails can be found here. Educational programs and workshops may also be accommodated (e.g., Junior Ranger program, Elderhostel, painting and photography workshops).

The greatest variety of park-appropriate development will be found in the frontcountry high development zone. Additionally, the greatest number and highest concentration of facilities will be found here. This is the only zone where full-service visitor centers and developed campgrounds (with electricity, sewage/dump stations, and showers) may occur. The existing lodge, gift shop, and restaurant will be in this zone. Sprinkler systems, housing, and exterior lighting also will be permitted in this zone. (Exterior lighting will be the minimum needed for visitor safety in order to minimize impacts on night sky viewing.) Other types of appropriate visitor facilities may include focused visitor facilities, paved or hardened walkways, nature trails and river put-in or take-out sites, restrooms, developed picnic areas, and interpretive facilities. Several other types of developments, including corrals, barns, entrance stations, utility lines, irrigation systems, diversion dams, and other structures associated with park operations and maintenance, may be permitted in this zone. Culturally significant resources, including historic structures, may be used for administrative purposes.

FRONTCOUNTRY LOW DEVELOPMENT ZONE

Visitors will have a fairly structured rural experience oriented around motorized sightseeing, camping, picnicking, and taking short walks. Basic facilities and services will be provided, but they will be fewer and less concentrated than in the frontcountry high development zone. There will be few opportunities for solitude, but the social environment will remain uncrowded. Natural conditions will be unmodified in most of the zone.

Resource Condition. Natural processes and landscapes will be unaltered, except within or directly adjacent to the limited number of developed sites. In developed areas, natural processes and landscapes may be altered or manipulated when necessary to restore damaged areas, to preserve or maintain cultural resources, or to direct visitor use to avoid resource impacts. All alterations will be designed to blend in with the natural landscape.

VISITOR EXPERIENCE

In this zone visitors will experience the park while in or near their vehicles and with the aid of some basic services and facilities. Visitors will feel they are part of the natural landscape, while

also having the security of knowing other people and facilities are nearby. Sights and sounds of people and some vehicles will be expected. Although there will be few opportunities for solitude and the probability of encountering other people or NPS staff will be moderate, the social experience will be uncrowded. Throughout the year, the only limits on numbers of people or on group size that may be encountered, both day and night, will be due to resource protection concerns or facility design capacities. At night, people can camp in campgrounds, but no lodging will be available. Basic necessities and conveniences will be provided; therefore, visitors will not need a high degree of self-reliance or outdoor skills. Travel generally will be by motor vehicle along secondary roads, or by foot or bicycle on short trails.

Management and Scientific Uses. Management and scientific uses will be the same as described for the frontcountry high development zone.

Appropriate Kinds of Activities and Development. Most activities will be somewhat structured, with the visitor experience oriented around motorized sightseeing, camping in campgrounds, picnicking, and taking short walks. Non-motorized watercraft use, bicycling on roads or designated trails, climbing, canyoneering, viewing selected cultural sites, nonmotorized winter activities, commercial filming, and group activities generally will be permitted, with some restrictions or prohibitions possible. Day use of saddle stock may be permitted on designated trails and at designated times. A wide range of interpretive, educational, and orientation programs, facilities, and information will be provided, but to a lesser extent than in the frontcountry high development zone. Unlike the frontcountry high development zone, lodging, conferences, food sales, and gift sales will be prohibited. The types of development permitted will be similar to those in the frontcountry high development zone, but they will be less concentrated and generally more primitive. For example, only secondary roads will be present—roads may be paved, but will be designed to maintain the rural setting, with low traffic volumes and slow speeds. Picnic sites (tables) will be limited to a cumulative total of ten sites per zoned area. Campgrounds will not have electricity, sewer/dump stations, or showers. Focused visitor facilities may be present to provide visitors with park orientation/information or to interpret specific park resources. The following types of developments will not be allowed: sprinkler systems, exterior lighting, full-service visitor centers, lodges, gift shops, and restaurants. Existing historical features (e.g., orchards, irrigation ditches) may be maintained. Culturally significant resources, including historical structures, may be used for administrative purposes.

TRANSITION ZONE

The main purpose of this zone will be to allow visitors to view or directly access many of the park's prime resources by means of nonmotorized, maintained, high-use trails. This will be a day- use zone. Only minimal facilities (e.g., trails) will be present. Visitor use will be concentrated within or near these facilities, leaving the rest of the landscape largely undisturbed and the resources protected.

Resource Conditions. Natural processes will likely be altered to a greater degree than in the primitive and pristine zones, but less so than in the frontcountry high and low development zones. For example, culverts may be constructed to direct the flow of water under a trail, although other types of stream channelization cannot occur. (However, channelization may continue in the section of the North Fork of the Virgin River flowing through the main Zion Canyon.) Some parts of the natural landscape may be altered by hardening them or shielding them from impacts (e.g., surfacing trails or campsites, putting in water bars, installing toilets). As in the frontcountry low development zone, natural processes and landscapes may be altered or manipulated in developed areas in the transition zone when necessary to restore damaged areas, to preserve or maintain cultural resources, or to direct visitor use to avoid resource impacts. All alterations will be designed to blend in with the natural landscape.

Visitor Experience. Visitors will have opportunities to view or directly access many of the park's prime resources via well-developed trails. Visitors will have a sense of being in a natural landscape, although during the peak season there will be a low expectation of solitude due to the sights and sounds of other people. The probability of encountering other people and

NPS staff will be high, but crowding levels will not keep visitors from reaching desired destinations or viewing outstanding park features. Throughout the year, the only limits on day use—numbers of people or group sizes that may be encountered—will be due to resource protection concerns or facility design capacities. This zone generally will be closer to conveniences and easier to access than the primitive and pristine zones; therefore, visitors will need only a low to moderate degree of self-reliance and basic outdoor skills. Travel generally will be on foot and largely directed via surfaced trails, and other clearly delineated routes over land or water.

Management and Scientific Uses. Management actions will focus on maintaining visitor facilities, mitigating impacts from human use, and providing for quality visitor experiences. In order to avoid resource impacts, actions may be taken to manage visitors, including designating overnight use areas, directing or limiting use via safety rails or chains, fences, and other barriers, and educating and encouraging behaviors that protect resources and maintain visitor safety. Research and resource management activities also will be permitted, with some restrictions. Most types of equipment and small motorized vehicles that do not exceed the trail widths will be allowed. How, when, and where equipment will be used for management or scientific purposes may be restricted. For both research and administrative purposes, group size will be limited by resource protection concerns or facility design capacities.

Appropriate Kinds of Activities and Development. Only nonmotorized visitor uses can occur in a transition zone, such as hiking and backpacking. Day use of saddle stock will be permitted on designated trails at designated times. Watercraft use, climbing, and canyoneering, nonmotorized winter activities, viewing selected cultural sites, and commercial filming generally will be permitted, with some restrictions or prohibitions possible. Group activities such as weddings will not be allowed. A moderate range of interpretive services may be available, including formal guided walks, informal patrols, outdoor exhibits and bulletin boards, signs, trail guides, and various educational programs.

The types and level of development in the transition zone will be limited. Appropriate types of visitor facilities will include: pit toilets; developed trailheads; clearly delineated routes over land or water; surfaced trails, overlooks, and destination points; bridges; and interpretive and informational signs. Management structures will be limited to irrigation ditches, springhead boxes, river gauges, gabions, trail culverts, diversion dams, research exclosures, radio repeaters, fences, safety rails, chains, or other such barricades. Except for historic structures listed or eligible for listing on the National Register of Historic Places, no utility-related structures, cabins or large buildings, or other more developed "frontcountry" facilities will be allowed. Only those roads that allow access to private property will be permitted, although these roads will be gated and open only to landowners and their guests. Culturally significant resources, including historic structures, may be used for administrative purposes.

PRIMITIVE ZONE

This zone will provide better opportunities for visitors to experience wildlands and solitude than the zones described above. The landscape will be largely undisturbed, with natural processes predominating. However, compared to the pristine zone, access will be easier into this zone, there will be signs of people, and the area will feel less remote.

Resource Condition. Natural processes and the landscape will be unaltered in the primitive zone, except for a few minimal developments such as primitive trails and designated campsites. Little evidence of recreational impacts will be tolerated. Resources may be altered or manipulated if necessary to restore areas that have been disturbed. Some resources may be altered to preserve/maintain cultural resources, but such changes will be kept to the minimum extent possible. A few resources also may be manipulated to direct visitors to avoid resource impacts, but they will be subtle and harmonize with the natural environment (e.g., building native plant barriers).

Visitor Experience. Visitors will have opportunities in the primitive zone to experience Zion's wildlands with limited assistance. There will be a sense of being immersed in a natural landscape with a moderate sense of solitude. Natural sights and sounds will be almost all that one sees and hears. The probability of encountering other people and NPS staff will be moderate throughout the year. Generally a visitor will encounter no more than twelve groups per day. An interim hiker group size limit for day and overnight use will be 12 or fewer individuals. For saddle stock parties, the interim group size will be a maximum of six saddle stock and six people per group. At night people can camp out of sight of others. Because this zone will be farther from conveniences, visitors will need to have a high

degree of self-reliance, and more advanced outdoor skills may be necessary (e.g., route-finding or canyoneering ability). However, travel will be largely directed via primitive trails and routes over land and in streams.

Management and Scientific Uses. Most of the management actions in this zone will be devoted to protecting resources, minimizing, or avoiding potential impacts from visitors, and restoring disturbed areas. Actions that may be taken to manage visitors include setting group size limits, designating camping sites, restricting off-trail use, and encouraging behaviors that protect resources. Research and resource management activities will be permitted, with some restrictions. For both research and administrative purposes, all groups will be limited to no more than 12 people. Motorized equipment and the use of aircraft to access the zone generally will not be permitted, as per the Wilderness Act and NPS policies.

Appropriate Kinds of Activities and Development. With the exception of interpretive activities and bicycling, the same types of non-motorized visitor activities described in the transition zone can occur in the primitive zone (although there may be different qualifications, restrictions, or prohibitions on visitor activities). Only limited opportunities may be provided for formal guided interpretive walks. No bicycling will be permitted. However, day use of saddle stock will be permitted on designated trails and at designated times. Off-trail use of saddle stock will be permitted only in designated areas. Overnight camping with saddle stock will be permitted only at designated sites.

There will be very little development, either to support visitors or for management purposes. Narrow, unpaved trails and/or routes will be maintained (paved trails that existed at the time of zoning are an exception to this rule). Some designated campsites and other facilities may be provided for the purpose of protecting resources rather than for the convenience of visitors (e.g., pit toilets and stream crossings, but not bridges). Some undeveloped river put-in and take-out points may be designated to minimize the potential for resource impacts. Informational/ directional signs also may be provided when deemed necessary for human safety and resource protection; however, interpretive signs will not be present. Some administrative facilities may be maintained if they are needed for parkwide management (e.g., radio repeaters, weather stations, existing water collection devices, river gauges). Culturally significant resources, including historic structures, may be used for administrative purposes.

PRISTINE ZONE

The pristine zone will offer the feeling of being entirely alone in Zion's remote and isolated wildlands. This zone will provide visitors a chance to experience a natural landscape. Use of these areas will be low, and group encounters infrequent.

Resource Condition. Lands in this zone will be managed to perpetuate natural conditions and

processes, undisturbed by people. There will be very little tolerance for uses or actions that will disturb or alter resources and natural processes; the only sign that others have used the area may be faint hiking routes and bolts on climbing routes. However, some resources may be altered or manipulated if necessary to restore areas that have been disturbed, or to preserve/ maintain cultural resources.

Visitor Experience. Visitors will have the sense of being immersed in a totally natural landscape. With virtually no evidence of others passing through this zone, some visitors may feel like they were the first humans to explore this area. Only natural sights and sounds will be seen and heard. There will be a strong sense of isolation and remoteness. The probability of encountering other people or NPS staff will be very low throughout the year. For example, visitors will not usually expect to encounter any other groups either during the day or at night. The interim group size limit will be a maximum of 12 people per group. Because visitors will not find conveniences and other people in this zone, they will need to be entirely self-reliant and possess a high level of outdoor skills— route-finding and canyoneering abilities will be essential.

Management and Scientific Use. Management in the pristine zone will be aimed primarily at protecting park resources, while still ensuring that visitors have a high-quality experience. Minimal administrative use will occur, such as restoration of disturbed areas, search and rescue, and monitoring of endangered species. However, providing the type of desired visitor experience will require a high degree of management of visitors outside of the zone. For example, visitor levels will need to be highly managed to ensure that visitor encounters are minimized. If impacts occur due to visitor use, there will be increased management of visitors (e.g., required orientations, use restrictions, temporary closures).

Long-term inventory and monitoring and resource management to mitigate human impacts or preserve cultural resources will occur in this zone. Other types of research may take place if this zone is considered to be the only, or best suitable, area for that research. All research activities will require a project/research proposal that will be subject to internal (National Park Service) and external peer review.

For both research and administrative purposes, the size of groups and the total number of groups will be the same as described for visitors in this zone. Motorized equipment and the use of aircraft to access the zone generally will not be permitted, as per the Wilderness Act and NPS policy.

Appropriate Activities and Development. Hiking, backpacking, climbing, canyoneering, cross-country skiing, snowshoeing, and nonmotorized watercraft use will be permitted, with restrictions or prohibitions possible at certain times and locations. Commercial filming may be permitted, provided it is consistent with the

desired conditions and intent of the zone. No commercial recreational activities, motorized/ mechanical uses, or saddle stock will be permitted in order to minimize impacts to other visitors and the resources. Interpretive/ educational services also will not be provided in the pristine zone.

No visitor developments generally will be present, including campsites, signs, or maintained river put-in/take-out. However, routes and paths may be defined and maintained if necessary to prevent resource damage. Faint hiking routes and climbing bolts will be permitted. Administrative developments generally will not be permitted, with the possible exception of existing radio repeaters that are essential for parkwide management. Culturally significant resources, including historic structures, may be maintained but will not be used for administrative or other purposes.

RESEARCH NATURAL AREA (RNA)

This zone applies the intent of the national network of "research natural areas," which are field ecological areas designated primarily for research and education and/or to maintain biological diversity. Research natural area zones will be applied in areas with little to no human disturbance. Baseline inventory and long-term ecological observations will be emphasized in this zone, with the primary purpose of creating an ecological/environmental benchmark over time. This zone will not be open to recreational use, but may be open to educational uses.

Resource Condition. This zone is located in areas that are prime examples of natural ecosystems and areas with significant genetic resources with value for long-term baseline observational studies or as control areas. The areas will exhibit little evidence of human disturbance, although they will be relatively accessible (with the exception of the isolated mesa tops). Limited manipulations may be allowed, provided the intent is to restore the area to more natural conditions (such as when using prescribed fire), or to preserve/maintain significant cultural resources (such as when conducting archeological research).

Visitor Experience. Any areas included in this designation will be closed to all recreational uses. Educational trips may be authorized under established RNA guidelines, subject to justification, documentation, and internal review.

Management and Scientific Uses. All management and scientific uses in research natural areas will require a project/research proposal that will be subject to internal (National Park Service) and external peer review. Long-term inventory and monitoring, and resource management to mitigate human impacts or preserve cultural resources will occur. Other types of research, sampling, or collection may occur if it is considered to be the only, or best suitable, area for accomplishing the research objectives. Limited administrative uses (e.g., search and rescue) will be permitted, but will be infrequent and last only a short time. For both research and administrative activities, an interim limit will be 12 or fewer individuals. The total number of groups will be established in the carrying capacity studies and the wilderness management planning process. Motorized equipment and the use of aircraft to access the zone generally will not be permitted, as per the Wilderness Act and NPS policies.

Appropriate Kinds of Activities and Development. Although this zone will be closed to general public use, some interpretation of the areas may occur outside of the zone, such as explaining the benefits and use of benchmark environmental monitoring sites as land management tools. Camping and trail construction will not be allowed, except to provide essential access to established research facilities. Temporary research equipment (e.g., stream gauging stations, meteorological equipment) will be permitted if there is no practical alternative for achieving research goals, and where consistent with the wilderness management plan, the Wilderness Act, and other park documents (e.g., the "Resource Management Plan").

ADMINISTRATIVE ZONE

The primary purpose of this zone will be to support the management and administration of the park. General visitation will not occur, although some visitors may access these facilities/areas to obtain staff assistance or to solve a problem. The level of facility development and concentration will vary as needed to provide for park operations; the degree of modification of natural processes and landscapes also will vary.

Resource Condition. Natural processes and the landscape will be altered to support park operations; the degree of alteration will be dependent on need. Resources may be altered or manipulated whenever necessary to restore damaged areas, to preserve/maintain cultural resources, or to direct use in order to avoid resource impacts. However, all alterations should blend in visually with the surrounding landscape or facilities to the extent possible.

Visitor Experience. General public visitation will not be encouraged, because this zone will be intended to serve primarily administrative functions. However, some visitors may have access to obtain staff assistance or to solve a problem.

Management and Scientific Uses. Most management activities will be devoted to maintaining park facilities and for park operations. Research and resource management activities will be permitted with some restrictions. Most types of equipment will be allowed for scientific and management purposes, although how, when, and where the equipment is used may be restricted. For both research and administrative purposes, the number of people will be limited if there are resource protection concerns or by the physical capacity of the facilities.

Appropriate Kinds of Activities and Development. Because the public will seldom be in this zone, there will be no interpretive, educational, or orientation facilities or services; however, orientation information, such as signs, may be present to direct visitors where to go for assistance. The type, level, and concentration of administrative facilities will depend on the requirements for park operations, and generally will be the same as in the frontcountry high development zone.

Appendix D: Summary of Research Natural Areas

Research Natural Area	General Description	Ecological Units Present in the RNA[1]	Other Resource Attributes
Kolob Mesas Acreage: 623.0	The relatively flat tops of Timber Top Mountain and Nagunt Mesa overlooking the Kolob Canyons. Also includes canyon draining west from Timber Top Mountain. Access is by helicopter and technical climbing only.	• Hanging canyons • Relict mesas • Relict forests • Springs and seeps • Rock crevice and slickrock communities	• Peregrine falcon nesting and foraging • Natural 1st order watershed
Shunes Creek Acreage: is combined with Parunuweap	Shunes Creek Canyon below the Navajo Sandstone cliffs along the southern boundary of the park, excluding the administrative zone around a water right diversion. Shunes Creek is a small perennial stream tributary to the East Fork of the Virgin River.	• Riparian fluvial & aquatic • Springs and seeps • Riverine adaptation of ancestral Puebloan people	• Bighorn sheep lambing area • Good populations of virgin spinedace • Natural function in riparian area • Ancestral Puebloan people use
Hanging Garden Acreage: 2.2	Five hanging gardens in Zion and Parunuweap Canyons. RNA would include the immediate vicinities of Grotto Spring, Weeping Rock, Sinawava Hanging Garden, and two unnamed springs in Parunuweap Canyon.	• Hanging gardens • Springs and seeps	• Rare endemic plant and animal communities • Rare hydrology • Endemic invertebrates including Zion snail
Isolated Mesa Tops Acreage: 877.4	Isolated mesa tops that are surrounded by high cliffs of Navajo Sandstone. These include Burnt Mountain (south of La Verkin Creek), Greatheart Mesa, Inclined Temple, four unnamed high mesas west of Horse Pasture Plateau, and two closely associated unnamed mesas north of Wynopits Mountain. Access is by helicopter and technical climbing only.	• Relict mesas • Hanging canyons • Relict forests	• Genetic isolation of some plant and animal species possible. • Conditions for plants and animals as near natural as physical isolation can provide • First order ephemeral channels • Relict ecosystems in the absence of large mammals
Goose Creek Acreage: 994.3	The sandstone slot canyons of Goose Creek, which drain east from Lava Point and Horse Pasture Plateau. A five-mile long tributary of the North Fork of the Virgin River with deep narrow canyons and perennial stream flow in the lower reaches. Access to most of Goose Creek is through technical canyoneering.	• Slot canyons • Riparian fluvial & aquatic • Springs and seeps • Hanging canyons • Relict forests	• Mexican spotted owl habitat. • Second and third order ephemeral and perennial channels • Surface almost entirely inside park

Research Natural Area	General Description	Ecological Units Present in the RNA[1]	Other Resource Attributes
Crazy Quilt Mesa Acreage: 153.0	The top of Crazy Quilt Mesa and adjacent slopes, east of Checkerboard Mesa near the East Entrance to the park. Access is by helicopter and technical climbing only.	• Relict mesas • Rock crevice and slickrock communities	• Excellent examples of slickrock, and crack & crevice geology and hydrology • Several rare plant species • Potential Mexican spotted owl habitat
Slickrock Acreage: 556.6	An area of extensive slickrock buttes, slopes and terraces, south of Clear Creek, east of Gifford Canyon and around the head of Crawford Wash.	• Rock crevice and slickrock communities • Eolian landscape	• Excellent examples of slickrock, and crack & crevice geology and hydrology • Several rare plant species
Southeast Pinyon Juniper Acreage: 1,180.5	An area of relatively deep sandy soils supporting relict pinyon – juniper forests in the southeastern most corner of the park. The vicinity includes dune deposits and slickrock. Access is via several miles of poor roads across BLM land.	• Relict forest • Eolian landscape	• Unusually large old-growth pinyon - juniper communities • Unique association of birds • Numerous evidence of ancestral Puebloan people use
Parunuweap Acreage: 4,625	Includes Parunuweap and most of Shunes Creek Canyons below the Navajo Sandstone, and Transview mountain above the Navajo sandstone. Parunuweap canyon contains the East Fork of the Virgin River, one of the last remaining free-flowing large rivers in the desert southwest. The surrounding lands include extensive slickrock and old-growth pinyon-juniper in the southeastern corner of the park.	• Rock crevice and slickrock communities • Riparian fluvial & aquatic • Springs and seeps • Hanging gardens • Hanging canyons • Eolian landscape • Riverine adaptation of ancestral Puebloan people	• Numerous evidence of ancestral Puebloan people use • Bighorn sheep lambing area • Peregrine falcon breeding • Mexican spotted owl breeding • Historic Use • Natural hydrology and healthy riparian communities • Unusually large old-growth pinyon-juniper communities • Unique association of birds • Several rare plant species

[1]Description of Ecological Units

Eolian Landscape – Areas where wind is the predominate shaper of the land. Features include unvegetated dunes, vegetated wind-deposited soils that are often deep, and wind erosion of exposed rock. The ability of eolian soils to capture and store water is enhanced by their sandy texture and depth.

Hanging Canyons – Canyons that are isolated from below by abrupt vertical cliffs, and are thus hanging above the rest of the terrain. As such hanging canyons contain plant and animal communities isolated from human and other influences that affect more accessible canyons. The large vertical relief in Zion National Park permits the occurrence of larger hanging canyons with a greater degree of isolation than elsewhere.

Hanging Gardens – Seeps issuing from vertical faces of Navajo Sandstone. These vary in size and create rare vertical wetlands habitats that support unique plant communities and endemic invertebrate species. Though found elsewhere on the Colorado Plateau, hanging gardens in Zion National Park are more numerous and larger, and contain species not found elsewhere.

Riverine Adaptation of Ancestral Puebloan People – Areas occupied by ancestral Puebloan people where they became adapted to life along large perennial watercourses of the Virgin River basin. This setting may have permitted a more sedentary lifestyle and greater populations than upland sites. Early excavations in Parunuweap Canyon provide "type sites" that are a benchmark for defining ancestral Puebloan people. Occupation occurred over several periods, and included a wide range of site types (pueblos, rock shelters, and cliff dwellings). The sites and their setting remain relatively intact.

Rock Crevice and Slickrock – Areas dominated by flat, sloping and vertical exposures of cross-bedded Navajo Sandstone. Plant and animal communities adapt to these settings that are at once harsh (due to sun, wind and temperature exposure) and accommodating (due to less competition, and greater water availability from runoff and seepage through cracks & joints in the rock). The result is the occurrence of several rare and endemic plant species.

Relict Forests – Woodland communities that have never been logged or otherwise disturbed. They contain old-growth forests and specialized habitats for species such as Mexican spotted owl. Soils and moisture regimes differ from disturbed forests.

Relict Mesas – High mesa tops, isolated by steep cliffs and accessible to humans only by helicopter or arduous technical climbs. These generally lack large mammals and have fire regimes unaltered by humans. Vegetation, insect and herpetological communities are generally unaltered. Genetic isolation may be significant.

Riparian, Fluvial and Aquatic - Habitats associated with rivers. These are some of the most diverse and productive habitats. Riverine systems are adapted to flood disturbance, channel migration, and abundant free-flowing water. Flow patterns are essentially natural.

Slot Canyons – Deep narrow canyons, accessible only by traversing the stream channel, that are cooler and moister than in surrounding terrain. Streambeds in slot canyons are dominated by flooding. Their existence and formation is highly developed in Zion National Park. They are important as habitat for Mexican spotted owl and mesic mixed conifer communities.

Springs and Seeps – Water sources that are important habitat for specialized vegetation and wildlife including endemic snails. These are important sites for the study of groundwater hydrology.

Appendix E: Summary of the Wild and Scenic River Evaluation

This appendix summarizes the study process that was used to determine whether any of the rivers in the park and on adjacent BLM lands should be recommended for inclusion in the national wild and scenic rivers system. For more details on the process, see the *Final General Management Plan / Environmental Impact Statement* (NPS 2000).

Seven rivers—each including the main stem and major tributaries—were evaluated within the park. These rivers constitute the park's major waterways. As per a 1998 Memorandum of Understanding between the NPS and BLM, this study also evaluated six short stream segments outside of national park boundaries on lands administered by the BLM. Total river mileage of the six BLM segments is 2.3 miles (see table 2). These river segments are upstream of and contiguous with the park rivers, and were evaluated along with park rivers in the interest of efficiency and holistic resource management. Wild and scenic river determinations for the BLM segments will constitute a land use plan amendment to the *Dixie Resource Area Resource Management Plan* (1998).

The rivers evaluated were:

- North Fork of the Virgin above and below the Temple of Sinawava
- East Fork Virgin River
- Coal Pits Wash
- North Creek
- La Verkin Creek
- Taylor Creek
- Camp Creek

The North Fork of the Virgin River was evaluated in two segments because the character of the river area changes significantly at the Temple of Sinawava.

STUDY PROCESS

All rivers in the park and the BLM river segments were evaluated. Each river study corridor included the channels of the main stem and major tributaries and the adjacent lands one-quarter mile from each riverbank.

The wild and scenic river study process is composed of three steps:

- determine if rivers are eligible as components of the National Wild and Scenic Rivers System
- determine the appropriate classification of eligible rivers
- determine whether the eligible segments would make suitable additions to the National Wild and Scenic Rivers System

Eligibility. The process used to conduct the eligibility assessment is described in "Wild and Scenic River Review in the State of Utah: Process and Criteria for Interagency Use," July 1996. The process was developed as a collaborative effort between the National Park Service, Forest Service, and Bureau of Land Management.

To be eligible for inclusion in the national wild and scenic rivers system, a study segment must be free-flowing and the stream corridor must exhibit at least one "outstandingly remarkable" resource value.

"Free-flowing" means existing in a largely natural condition without major impoundments, diversions, or other modifications of the waterway. There are no specific requirements concerning minimum flow for eligible segments. Flows are considered sufficient for eligibility if they sustain or complement the outstandingly remarkable values for which the segment would be designated. Rivers with intermittent flows have been included in the national system.

Outstandingly remarkable values (ORVs) are scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values that are judged to be regionally significant— those that stand out as among the best on a regional basis. All resources assessed should be directly river-related, or owe their location or existence to the river. Features that are exemplary (outstanding examples of common types), as well as those that are rare or unique, should be considered.

Classification. Four factors are evaluated in classifying eligible rivers: water resources development, shoreline development, accessibility, and water quality. The Wild and Scenic Rivers Act specifies three categories of classification:

Wild river areas are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas are readily accessible by road or railroad, may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

Suitability. The suitability phase evaluates whether designation as a national wild and scenic river would be the best way to manage eligible rivers. Suitability considerations include the environmental and economic consequences of designation and the manageability of the river if designated.

FINDINGS

Five of the seven rivers (and their tributaries) in the park were found eligible and suitable for inclusion in the National Wild and Scenic Rivers System: the North Fork Virgin River above and below the Temple of Sinawava, the East Fork Virgin River, North Creek, La Verkin Creek, and Taylor Creek. In addition, all six BLM segments were found eligible and suitable, with the exception of the upstream 1.7-mile segment of Shunes Creek from the Kane County line to the dryfall.

Table 2 displays the river mileage, landownership, and proposed boundaries of the rivers.

Table 2: River Mileage and Landownership of Suitable Rivers

		River Miles				% Federal	Proposed
	Flow	Total	NPS	BLM	Private	Ownership	Boundary
North Fork Virgin, Above Temple	P	10.0	10.0	-	-	100	Rim-to-rim
Kolob Creek	P	3.3	2.9	0.4	-	100	Rim-to-rim
Goose Creek	I,P	4.6	4.2	0.4	-	100	Rim-to-rim
Imlay Creek	P	2.7	2.7	-	-	100	Rim-to-rim
Orderville Canyon	P	3.5	3.5	-	-	10	Rim-to-rim
Deep Creek	P	0.8	0.8	-	-	100	Rim-to-rim
Mystery Canyon	I	1.4	1.4	-	-	100	Rim-to-rim
Subtotal		**26.3**	**25.5**	**0.8**	**0**	**100**	
North Fork Virgin, below Temple	P	8.0	8.0	-	-	100	1/2 mile
Birch Creek Canyon	P	2.3	2.3	-	-	100	1/2 mile
Pine Creek	I,P	4.6	4.6	-	-	100	Rim-to-rim
Oak Creek	I	2.8	2.8	-	-	100	1/2 mile
Heaps Canyon	E	2.8	2.8	-	-	100	Rim-to-rim
Behunin Canyon	E	1.9	1.9	-	-	100	Rim-to-rim
Echo Canyon	I	2.5	2.5	-	-	100	Rim-to-rim
Clear Creek	E	6.4	6.4	-	-	100	Rim-to-rim
Subtotal		**31.3**	**31.3**	**0**	**0**	**100%**	
East Fork Virgin River	P	8.0	8.0	-	-	100	1/2 mile
Shunes Creek	P,I	3.0	2.0	1.0	0	100	1/2 mile
Subtotal		**11.0**	**10.0**	**1.0**	**0**	**100**	
North Creek	P	17.5	17.5	-	-	100	Rim-to-rim
Wildcat Canyon	I	2.8	2.8	-	-	100	Rim-to-rim
Right Fork	P	9.1	9.1	-	-	100	Rim-to-rim
Left Fork	P	7.5	7.5	-	-	100	Rim-to-rim
Grapevine Wash	E,P	3.0	2.6	-	0.4	100	Rim-to-rim
Wolf Springs Wash	I	1.9	1.4	-	0.5	73	1/2 mile
Pine Spring Wash	I,P	6.0	4.6	-	1.4	77	1/2 mile
Little Creek	P	7.1	7.1	-	-	100	1/2 mile
Russell Gulch	I	2.0	2.0	-	-	100	Rim-to-rim
Subtotal		**56.9**	**54.6**	**0**	**2.3**	**96%**	
LaVerkin Creek	P	8.7	8.7	-	-	100	1/2 mile
Willis Creek	I	1.9	1.6	0.3	-	100	Rim-to-rim
Beartrap Canyon	P	2.3	2.2	0.1	-	100	Rim-to-rim
Timber Creek	I	3.1	3.1	-	-	100	Rim-to-rim
Currant Creek	P	1.6	1.4	-	.2	89	Rim-to-rim
Cane Creek	P	1.1	0.6	-	.5	55	Rim-to-rim
Hop Valley Creek	P,I	4.3	3.3	-	1.0	77	1/2 mile
Subtotal		**23.0**	**20.9**	**0.4**	**1.7**	**91%**	
Taylor Creek	P	4.6	4.5	-	0.1	98	Rim-to-rim
North Fork	I	2.0	2.0	-	-	100	Rim-to-rim
Middle Fork	P	2.0	2.0	0.1	-	100	Rim-to-rim
South Fork	I	1.5	1.5	-	-	100	Rim-to-rim
Subtotals		**10.2**	**10.0**	**0.1**	**0.1**	**98%**	
Totals		**158.7**	**152.3**	**2.3**	**4.1**	**96%**	

Notes:

Bold face indicates the main stem. Tributaries are listed beneath.
"Flow" refers to hydrologic status as either (P)perennial, (I)intermittent, or (E)ephemeral.
- Goose Creek is intermittent in upper 2/3 of segment, perennial in lower 1/3.
- Pine Creek is intermittent above the slot canyon, perennial from slot canyon down.
- Grapevine Wash is ephemeral above Grapevine Spring, perennial below the spring.
- Pine Spring Wash is intermittent above spring, perennial below spring.

Proposed boundaries, if designated, are based upon canyon topography.

Appendix F: Legislative History for Zion National Park

Mukuntuweap National Monument established on July 31, 1909, by Presidential Proclamation No. 877 (36 Stat. 2498). Total acreage: 15,200 acres.

Mukuntuweap National Monument name changed to Zion National Monument on March 18, 1918, by Presidential Proclamation No. 1435 (40 Stat. 1760). The proclamation also added 61,600 acres of land. Total acreage now: 76,800 acres.

Zion National Park established from Zion National Monument on November 19, 1918, by Act of Congress (41 Stat. 356). Included all lands formerly in the monument.

On June 13, 1930, Congress approved Public Law No. 351 (46 Stat. 582), which added 17,441 acres to the park. Total acreage now: 94,241 acres.

Zion National Monument was established on January 22, 1937, by Presidential Proclamation No. 2221 (50 Stat. 527). Gross acreage of the monument was 48,414 acres.

Zion National Monument was made a part of Zion National Park on July 11, 1956, by Act of Congress (70 Stat. 527). All lands formerly in the monument were included in the park. Total acreage now: 142,655 acres.

An act to revise the boundaries of Zion National Park was approved February 20, 1960 (74 Stat. 4). The boundary change added a total of 3,485 acres to the park. Total acreage now: 146,610 acres. (Note: Official land records of the National Park Service indicate that as of January 1, 1970, gross acreage of Zion National Park was 147,035 acres.)

An act to revise the boundaries of the national park was approved October 21, 1976 (90 Stat. 2732).

Appendix G: Summary of Key Legal Mandates

Legal mandates provide direction for what can and cannot be considered in this plan. Several of the provisions of key legal mandates are summarized below.

NATIONAL PARK SERVICE ORGANIC ACT OF 1916 (P.L. 64-235)

This act created the National Park Service and established its mandate to conserve park resources and values and provide for their enjoyment: "[The National Park Service] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations...by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner as will leave them unimpaired for the enjoyment of future generations." The act also authorized the Secretary of the Interior to make rules and regulations for the use and administration of NPS areas, and allowed concessioners to be granted leases in parks.

NATIONAL PARKS AND RECREATION ACT OF 1978 (P.L. 95-625)

Section 604(b) of this act requires that general management plans be prepared and revised in a timely manner for each unit in the national park system. The act further specifies that general management plans shall include measures for the preservation of the area's resources, indications of the types and intensities of development associated with public use of the unit, visitor carrying capacities for all areas of the unit, and indications of potential modifications of the unit's external boundaries if needed.

ENDANGERED SPECIES ACT OF 1973, AS AMENDED (16 USC 1531 ET SEQ.)

The purpose of this act is to provide protection for animal and plant species that are currently in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). Section 7 requires all federal agencies to ensure that their activities do not have adverse impacts on the continued existence of threatened or endangered species or on designated areas (critical habitats) that are important in conserving those species. Thus, the National Park Service is required to fully integrate endangered species conservation planning into park system management. Agencies also are required to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. The result of formal or informal consultation with the Fish and Wildlife Service should be documented in an environmental assessment or environmental impact statement.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA; P.L. 91-190)

This act sets forth the federal policy to preserve important historic, cultural, and natural aspects of our national heritage. Another purpose of NEPA is to help public officials make decisions that are based on an objective understanding of environmental consequences and to take actions that protect, restore, and enhance the environment. The act applies to all federal projects or projects that require federal involvement. All federal agencies are directed to use a systematic, interdisciplinary approach that integrates natural and social sciences in planning and decision making that may impact the human environment. NEPA and the Council on Environmental Quality implementing regulations describe the process a proposed federal action such as this plan must follow. Among the steps in the process, NEPA and the regulations require early coordination, called "scoping," to determine the scope and significance of issues to be addressed in an environmental impact statement. A structured format for public involvement during the public review process is specified. When preparing an environmental impact statement, the regulations further require federal agencies to rigorously explore and objectively evaluate all reasonable alternatives to the preferred alternative.

WILD AND SCENIC RIVERS ACT OF 1968 (P.L. 90-542)

This act establishes federal policy to preserve certain rivers with remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values in a free-flowing

condition and to protect their immediate environments. The act created the national wild and scenic rivers system and outlined criteria and procedure whereby free-flowing streams, or portions thereof, can be added to the system. The system includes wild, scenic, and recreational rivers. Rivers and streams proposed for inclusion in the system must be considered during project planning and project impacts identified in an environmental assessment or an environmental impact statement.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (16 USC 470, ET SEQ.)
This act establishes as federal policy that the historical and cultural foundations of the nation's heritage be preserved. Section 106 requires that federal agencies that have direct or indirect jurisdiction over undertakings take into account the effect of those undertakings on properties eligible for or included in the National Register of Historic Places. The section also provides the Advisory Council on Historic Preservation and the state historic preservation officer an opportunity to comment on the undertaking. The 1992 amendments to the act have further defined the roles of American Indian tribes and the affected public in the section 106 consultation process. Section 110 requires federal managers, in consultation with the state historic preservation officers, to establish programs to identify, evaluate, and nominate properties to the National Register of Historic Places.

National register eligible or listed properties and national historic landmarks are afforded special protection in federal project federal project planning and implementation.

WILDERNESS ACT OF 1964 (P.L. 88-577)
The Wilderness Act established the national wilderness preservation system, composed of congressionally designated, federally owned areas. Federal agencies are required to administer these areas to provide for their use and enjoyment, now and in the future, and to protect and preserve their wilderness character. NPS policy is to manage all potential, proposed, recommended, and wilderness study areas as wilderness, to the extent that existing nonconforming uses will allow, and to seek to eliminate the temporary conditions that preclude wilderness designation.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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